HOMEOPATHY AND INTEGRATIVE MEDICINE

Qualitative evaluation of successful homeopathic treatment of individuals with chronic diseases: descriptive phenomenology of patients' experiences

Mary Koithan · Misty Embrey · Iris R. Bell

Received: 29 June 2014/Accepted: 27 August 2014/Published online: 1 October 2014 © Springer-Verlag Italia 2014

Abstract Homeopathy, an over 200-year-old major system of care within complementary and alternative medicine, is used worldwide. While homeopathy has stimulated much debate over the nature of its medicines (remedies), relatively little research has focused on its therapeutic process as experienced by patients in clinical practice. The goal of this qualitative study was to use descriptive phenomenology to assess patients' experiences of the homeotherapeutic process. We interviewed 36 homeopathic patients with a history of at least one chronic disease who, in the provider's global clinical impression, had exhibited a treatment-related sustained, outstanding or extremely successful outcome in their condition for at least 1-year follow-up. Two essential structures describing the lived experiences of homeopathic treatment emerged from the data. One of the structures characterizes what it is like to be "successfully healed" as a transformative process of coming home to self. The second structure describes the experience of receiving care by a homeopath as an intensive process of self-exploration and self-discovery that was facilitated by a trusted partner in care.

M. Koithan · I. R. Bell (⋈)

The University of Arizona College of Nursing, 1305 North Martin Street, PO Box 210203, Tucson, AZ 85721-0203, USA e-mail: ibell@email.arizona.edu

M. Koithan

e-mail: mkoithan@email.arizona.edu

M Embrey

Frank H. Netter School of Medicine at Quinnipiac University, Hamden, CT, USA

I. R. Bell

Department of Family and Community Medicine, The University of Arizona College of Medicine, Tucson, AZ, USA

The data are consistent with contemporary concepts within nonlinear complex systems science. The current findings offer insights into the homeopathic patient's experience of treatment and provide a fuller clinical picture to guide future qualitative and quantitative research in homeopathy.

Keywords Homeopathy · Qualitative research · Patient outcomes assessment · Patient-centered outcomes research · Descriptive phenomenology · Complex systems science · Nonlinear dynamical systems

Introduction

Homeopathy is a more than 200-year-old whole system of complementary and alternative medicine (CAM) that was developed by the German physician Samuel Hahnemann, MD [1]. Consumer utilization worldwide is extensive and although US-based use is of homeopathy is relatively small, it is positioned as the fourth most utilized form of CAM after acupuncture [2]. As with other whole systems of CAM [3], classical homeopathy offers an integrated package of care, involving treatment with not only a specific, individually chosen medicine, but also extensive interactions with the homeopathic provider.

Few studies have directly evaluated the patient's lived experience of the treatment process as a whole [4–7]. The purpose of this paper is to describe the lived experiences of highly successful homeopathic patients so that we may better understand the therapeutic process from a patient's perspective. This understanding may also offer insight into better methods for data collection in efficacy trials.

A fundamental claim of homeopathy is that it triggers a self-healing response throughout the patient as an intact



system [3] that results in an overall greater sense of freedom [8] on multiple levels [9]. As in other whole systems of complementary and alternative medicine, homeopathic practitioners often report that their interventions help patients become "unstuck" from chronic dysfunctional patterns/ruts at the somatic, mental, social, spiritual and developmental levels [8].

Anecdotal reports from practitioners report a range of responses described as "unstuckness" and an equally divergent long-term response to being "unstuck." In some patients, unstuckness leads to lasting transformative or transcendent changes whereas, in others the transformative change does not last. Rather, the patient relapses back toward the previous illness patterns or settles into an improved but still chronically dysfunctional way of living.

A key component of the homeotherapeutic process is the continuity of care and trust established as part of the patient–provider relationship [7, 10–13]. Some clinical trials have highlighted the therapeutic benefit of the homeopathic encounter despite an inability to find a statistically significant effect of homeopathic remedies over placebo in certain disorders [12, 14]. In homeopathic treatment, the extensive and individualized initial casetaking (intake) interview can last from 1 to 2 h or more, and follow-up appointments, which can last from ½ to 1 h, typically occur at 6–8 weeks or longer intervals.

Treatment with the same provider can last for a year or more (good continuity). As part of their diagnostic evaluation and assessment of outcome, homeopaths want to know not only about physical ailments, but also about social relationships, jobs, major life events (positive and negative), and daily hassles and uplifts. They pass no judgment on the information they receive; rather, they use the material as a basis for treatment selection. Thus, in addition to the remedy, the patient—provider relationship [11] becomes a component of the overall treatment of chronic disease in homeopathy.

As research in homeopathy has evolved, some investigators have begun assessing patients' lived experience of the homeotherapeutic process [4–7]. It is believed that qualitative approaches are more suitable than randomized clinical trials used in pharmacological drug testing due to the RCTs' low external and model validity in relation to the practice of homeopathy in real-world contexts [10, 15].

In homeopathy, the patient's experience is used both to determine the totality of the symptoms, whereby the correct homeopathic medicine may be identified, and to assess the patient's progress at follow-up visits to determine how best to proceed [16]. Although the homeopathic patient's experience is becoming more recognized in research literature [4–7], to date, there has been no formal investigation of the experience of the actual healing process itself.

Therefore, this study used phenomenological methods to assess the patient's experience of classical homeopathic care and treatment of various chronic diseases. This study focused on the patient's experiences of treatment and was not intended to evaluate efficacy of the homeopathic medicines (remedies) themselves.

The data that emerged provide insight into the value of the patient-provider relationship in facilitating care as well as the experience of the dynamic whole-system shift felt by the homeopathic patient. These insights offer a qualitative glimpse into the more clinical aspects of the homeotherapeutic process, which provide parameters to guide future qualitative and quantitative research in homeopathy.

Methods

Design

We used descriptive phenomenology to assess patients' experiences of the homeotherapeutic process. The purpose of phenomenology is to understand the individual's world as experienced rather than as conceptualized, categorized, or theorized. In other words, phenomenology seeks to understand the essences of everyday experiences [17]. This understanding transforms the narrative of personal experience into disciplinary understanding.

In this study, we sought to understand the experience of highly successful homeopathic patients with chronic disease for one year who had been previously treated by a variety of other modalities. Previous modalities included complementary as well as biomedical interventions without successful resolution of the patients' illnesses and symptoms. The investigation of this experience was carried out in six steps in accordance with van Manen's phenomenological structure for human science research [17]:

- 1) Turning to a phenomenon that seriously interests us and commits us to the world;
- Investigating experience as we live it rather than as we conceptualize it;
- 3) Reflecting on the essential themes that characterize the phenomenon;
- 4) Describing the phenomenon through the act of writing and rewriting:
- 5) Maintaining a strong and pedagogical relation to the phenomenon;
- Balancing the research context by considering parts and whole.



Participants

This study was approved by the Institutional Review Board at The University of Arizona. The sample included 36 participants, 30 female and 6 male. Recruitment was pursued through interviews with homeopathic practitioners from across North America who were asked to invite their "extremely successful" patients and obtain permission for telephone contact by the research team to learn about the study and, if interested, provide written informed consent.

The subjects had to be English-speaking and able to engage in a telephonic interview, with a history of suffering from one or more chronic diseases. In addition, all patient participants had to have shown a sustained beneficial response from homeopathic treatment that had lasted for at least one year as evaluated by the treating homeopath and patient participant. Chronic illnesses identified by patients included COPD, cancer, chronic pain, autoimmune conditions, chronic mental illness (depression, bipolar disorders, social anxiety disorders) and chronic infections. More than 80 % of the participants reported more than two chronic conditions unresponsive to previous biomedical treatments that precipitated treatment by a homeopath.

As a secondary descriptive component of the study to further characterize the patient sample, subjects completed basic demographic questions and several validated selfrated questionnaire scales. The scales included:

- 1. Current Global Health Rating (5-point Likert scale), after the general health item of the SF-12 Quality of Life Scale [18, 19]—ratings range from 1 (poor) to 5 (excellent).
- Marlowe-Crowne Social Desirability Scale (13 item true-false validated short form) [20]—a measure of an individual's tendency to present themselves in a positive light to other people, i.e., to give perceived socially desirable responses.
- Tellegen Absorption Scale (34 item true-false) [21]—a
 measure of the tendency to become cognitively
 absorbed or involved in the sensory and imaginative
 aspects of daily activities, including openness to new
 experiences. Higher scores on this scale correlate with
 greater use of complementary and alternative medicine
 [22].

Qualitative data collection

Telephonic interviews were conducted by a registered nurse (RN) with training in phenomenological interview methodologies. All interviews were audio-recorded and lasted between 1 and 2.5 h. Phenomenological interviews are inherently retrospective; van Manen recommends that there be distance of at least 1-year between

the phenomenon of interest and the person's experience [17].

Procedure

During interviews, participants were asked "what it is like" to receive homeopathic care from their provider. Four grand tour questions were asked of all participants:

- Describe your experience of receiving homeopathic care:
- 2. Describe the outcomes of care:
- 3. Describe your expectations and goals of care; and.
- 4. Identify what would be successful treatment.

Additional questions were developed during the interview that verified, clarified, and amplified the descriptions offered by the participant.

Analysis

Audio-recorded interviews were transcribed into MSWord and managed by Ethnograph software [23]. Theoretical coding by two independent coders was used to fracture the data into analytical units according to van Manen's four fundamental existentials of lived experience [17]: (1) spatiality (lived space); (2) corporeality (lived body); (3) temporality (lived time); and (4) relationality (lived other). These elements of lived experience access the way humans experience the world and aided coders in identifying important themes of the participants' experiences [17]. Credibility of the coding process was ensured by the use of two coders who maintained adequate inter-coder reliability (K = 0.92) throughout the coding process. Data were then thematically analyzed to identify the underlying essential structures of the lived experience of homeopathic care.

Results

Demographics and sample characteristics

Table 1 presents the descriptive data for demographic and self-report questionnaire characteristics of the participants. On average, participants were middle-aged white married women, in currently good global health. Neither the Marlowe-Crowne nor Tellegen scale mean scores were markedly different from those in previously published studies (see "Discussion").

To enrich the reader's understanding of the patient experiences reported in the current paper, Table 2 summarizes the primary clinical credentials of the twenty-nine 250 homeopaths (interviewed separately and reported



Table 1 Patient participant demographics (n = 36)

Characteristic	Frequency	%
Age (years)		
21–30	3	8.3
31–40	2	5.5
41–50	11	30.6
51–60	7	19.4
>60	6	16.7
Missing data	7	19.4
Mean age (years) (SD)	7	49.6 (12.7)
Gender		
Female	30	80.3
Male	6	16.7
Ethnicity/Race		
Caucasian/White	28	77.8
Asian/Pacific Islander	3	8.3
Hispanic	4	11.1
Missing data	1	2.8
Marital status		
Married	23	63.9
Single	7	19.4
Divorced	3	8.3
Missing data	3	8.3
Tellegen absorption scale mean score (SD) ^a	18.3 (7.7)	
Marlowe-crowne social desirability (short form) mean score $(SD)^b$	6.8 (3.2)	
Current global health rating mean score ^c	3.86 (0.77)	

^a Max Score 34

elsewhere) whose patients participated in the current study [24]. Several of these homeopaths each referred 2–4 different patients to the current study to reach the final total of 36 patient interviews. Average time in clinical practice of homeopathy ranged from 5 to 33 years at the time of the study.

In a separate phase of the overall project, we used a grounded theory design to interview the treating homeopaths themselves. We determine that the clinicians fell into one of two general categories for their approach to selecting a single homeopathic remedy at a time for treatment in their homeopathic practice. The homeopathic practice categories of the providers were either "holistic" (n = 15, 52 %) or "integrative" (n = 14, 48 %) in their nature.

Based on our analysis of the homeopathic interview data, the "holistic" homeopaths reported relying more heavily for remedy selection on their understanding of the patient's

Table 2 Homeopathic provider clinical credential and practice style characteristics

Clinical credential	"Holistic" homeopathic practice style $(n = 15)$	"Integrative" homeopathic practice style $(n = 14)$	Total count (%) of provider samples $(n = 29)$
ССН	1 (3.45 %)	1 (3.45 %)	2 (6.9 %)
DHMS	0 (0 %)	1 (3.45 %)	1 (3.45 %)
LCEH- India	0	1 (3.45 %)	1 (3.45 %)
Lay Homeopath	1 (3.45 %)	3 (10.3 %)	4 (13.8 %)
MD	8 (27.6 %)	3 (10.3 %)	11 (37.9 %)
ND	2 (6.9 %)	3 (10.3 %)	5 (17.2 %)
PA	1 (3.4 %)	0 (0 %)	1 (3.45 %)
RN	1 (3.4 %)	1 (3.45 %)	2 (6.9 %)
RS Hom	1(3.45 %)	1 (3.45 %)	2 (6.9 %)

Data include counts of providers (with % of total provider sample of n=29). Twenty-nine different homeopaths enrolled in the study for interviews. Of those, each homeopath referred at least one patient, but a few referred more than one patient (patient sample total n=36). See text for description of "holistic" versus "integrative" practice styles

energy or overall emergent characteristic as a whole person than on well-known (keynote) symptoms of the patient and remedy. The holistic homeopaths indicated using homeopathic symptom repertories as confirmatory, but employed repertorization of the patient's symptoms later in their treatment decision-making process after narrowing their list of candidate remedies for the patient. Many of these practitioners mentioned the influence of the contemporary homeopathic teachers such as Rajan Sankaran, MD [25].

The "integrative" homeopaths described a different history taking and case analysis process that began by completing a thorough history and observation of the person, focused on the presenting characteristics. They relied primarily on the specific information to look for details that "stuck out" in the case. That is, this subset of the practitioners looked for strange, rare, and peculiar symptoms of interest to classical homeopaths and then matched the pattern of specific symptoms and their relative weighting of importance to a single remedy based mainly on repertorization protocols and processes. The homeopathic practice methods of the integrative providers might be considered more classically Kentian [26] in approach.

Patient interview data findings

Analysis of the interviews revealed the emergence of two essential structures describing the lived experiences of homeopathic treatment. One of the structures describes what is like to be "successfully healed" as a result of



^b Max Score 13

^c Score 1 = poor to 5 = excellent

homeopathic treatment. The second describes the experience of receiving care by a homeopath.

Transformation

The essential structure of successful healing was described as a transformative process of coming home to self.

It felt like magic. I don't know what this stuff is but I hope that I can feel this way for a very long time...I'm wide awake...I felt really good...I didn't have the mental fog; I didn't feel like I had been hit by a truck the way I had been feeling for many years; I didn't have the depression, or the mental anxiety. I felt energized... I didn't have to do anything; I felt great...But that's just the physical change from the fibromyalgia...Over time (sometimes with long spaces in between any change at all) this has made me more aware, honed in on underlying issues and feelings. I was amazed at the questions that the remedy created in me... they sort of bubbled up. Sometimes things were worse, sometimes better but I felt like I was engaged in this intense discovery that I simply had to do...I started to look at relationships differently and my life highs and lows started to level out. I was able to make decisions- like okay, this is really not good for me and this relationship is not going anywhere and I'm better off without him in my life. I felt freed up – I could feel ME – something that I hadn't been able to feel for most of my life. Things started to fit together; my life was like nothing I had experienced ever before and yet I felt more real than I had ever felt before (S207; lines 193-196, 206-209, 220-226,272-275, 284-287, 333-338, 390-391, 624-625, 762-767.

My whole life changed. Not just parts of it—all of it after the homeopathy. Because of my cancer, I had many people around me, many friends to help with difficult moments. But I felt lost and alone. I didn't want to be around people. After the homeopathy, I noticed the change. This was a 'me' that I didn't really know before-it was profound and included a personality change. Other people also noticed the change too. Now instead of staying to myself, I am constantly wanting [sic] to be around people. I work with children in the dispensary. I work with very poor people in a hospital. They come to the city and they are alone but I am with them...Although these are big changes from the ways that I had been, I feel like this is more true to who I am meant to be in this life. It is who I REALLY AM [emphasized by the respondent]...This didn't happen overnight; it was a process that occurred slowly over about 2 years, I think. Maybe a little shorter. But it didn't seem slow. It felt like things were changing immediately and I'm not sure I'm done changing...But during this whole process I felt like I wanted, almost like I had to change, I MUST CHANGE [emphasized by the respondent] [S204; lines 88-89, 98-102, 116-119, 128-129, 144-148, 201-210, 432-441, 457-460.

I started to notice that the migraines were triggered by stress. I was in an aggressive relationship. It was abusive in nature. After I started the remedy I ended my marriage but I was still dealing with an aggressive ex-husband. I remember at 1 point after probably several months on the remedy I had a dream. I stood up to [name] and it was like wow! That was so significant. And, then over time I had more dreams and eventually I was able to stand up to him in person...I would say that it felt like an awakening. Not only was the confusion in my mind gone, the nightmares were gone, the raging was gone, but I made changes in every aspect of my life that finally relieved all the physical things I had been struggling with. It's been 6 years now. I feel like I'm living for the first time. I get out. I do things. I don't just lay around in the dark all day and obsess over things. I face my issues. I deal with them. I've worked really hard to make choices and a have a voice and make my own decisions. I've taken control of me and finally I know who I am and what I want...I'm home (S208; lines 139-149, 239-240, 245-251, 28-285, 403-410, 507-510, 581-585,

Descriptors of lived body, relationships, time, and space powered the essential experience of transformative change that occurred during homeopathic treatment, including unsticking; powerful sweeping change or fluctuation; intense knowing of self; contraction/expansion of time and space; redundant cycling; uncontrollable; suspension; surprise/comfort with self; focus and purpose; "mustness" of response; emergence; observable living; clarity of self and purpose; permission to seek and explore; and immediacy of freedom.

Unsticking, conceptually defined as the process of becoming unstuck or a point in experience or time, a particular instance where shift/change occurred [8], is a particularly important aspect of the experience. Each participant reported a moment when they knew that change had occurred, a time when they could and would not return to their former way of living-being in the world. For some unsticking was experienced as instantaneous shift, "the earth moving beneath their feet" (S 203, line 31), a "coming to life" (S 239, line 829), "flipping of a light switch" (S207, line 167). For others, it was a slow and gradual process, characterized by redundant cycling, ups



and downs, expansion and contraction of time and space. "Over time I could see and feel the itch subsiding. I could tell; there was a soothing. This did not occur overnight...there were flare-ups—not big mind you—but definitely it was rolling up and down, peaks and downs. Deep down I knew it was changing, but I had to be patient and go with it (S225, lines 337–342, 348–350, 373–380).

In addition, the sense of mustness, defined as an embodied purpose and commitment to continue the process of unsticking and change served as encouragement and incentive.

It's really funny. I was not sure what was going to happen next but I felt like I absolutely had to see this through...it's like being in a story and wanting to see how it ends (S225, lines 626-630). I thought, my goodness, my problems are getting worse. Then I thought, I'll give it one more shot because (long pause), it's interesting it just kept popping back up. I did not necessarily think about trying other things. I felt it in my gut. I just had to keep doing this and trying again. I'm going to do this until we get it right (S211, lines 146-151). It's odd, there is a sense of expectation, and I would not say that it was something I was thinking—not my mind. But it was my body—like it was pushing or stretching to go forward. I would have been willing to pay more, spend more time, take more remedy because my body told me to keep going (S238, lines 651–663).

One of the most striking characteristics of homeopathic healing (the outcome of this process of unsticking and transformational change) was observable living, described as the ability to "see" more objectively and accurately their bodily sensations, thoughts, and behaviors, and the connection between current living and long-term possibilities. In turn, this precipitated a clarity of self and purpose in living, described as choosing wisely and with certainty about a preferred future, that several participants equated to freedom—the ability to see possibilities, explore options, and ultimately select what was "best" in the moment.

I seemed to gain a perspective, an ability to see myself clearly for the first time. I could grasp the meaning and connections between what I was experiencing in my life and what I was feeling in my body. I could follow or connect the dots. And, because of this I was able to manage every aspect of my life better. I could get the signal from my body, stop and look at what was going on at home or work, and within minutes, I could see several ways to make changes that would make my life better (S243, lines 355–366). After some time, I remember starting to be able to think and actually see what I was doing, what

I was doing wrong, and how I brought this illness and this achiness and the stuff on myself... I could see I was over-confident, rude, not a good person. Now I can see that I don't have to be that way and I have choices how I want to live. I could not see that or understand that in myself a couple of years ago. Now I can and I see how the choices I make can lead to either good or bad outcomes...This is not in my mind; it's in my skin (S214, lines 448–453, 462–469, 517–518).

Patient-provider relationship

The essential structure of the experience of homeopathic care was described as an intensive process of self-discovery and exploration facilitated by a trusted partner in care.

I remember [homeopath name] seeing me... I don't remember so much when I first saw [my homeopath] but when he first saw me, I don't quite know how to describe what it was that I sensed. I don't think I remember anyone ever looking at me in that way. That was the first time that I thought I might actually be ok... I felt like he was taking everything in, in a way that no one else ever had. Most [doctors] look at me and see what is wrong and thought about how they could fix it. [Homeopath name] just simply looked, not judging but behind it all there was a sense that I was being understood. It's the same as when I looked at a teacher in the eye for the first time...different from everything else...He was very adept at asking the right questions. I didn't need to worry about knowing what to tell him. It was the relationship...he knew what to ask, even if I wouldn't have thought it was important. He had a way to get the information needed." We fit (\$232, lines 174-179, 182-194, 280-291, 295-297).

I found her very gentle, very understanding. What I found was that the doctor was actually asking questions about my past and how I actually felt, not just my symptoms but trying to figure out how she could help me. She went right back to the root of the whole thing, way back to my teens. She connected my lack of control over my life to being out of control of a car during an accident. I wasn't making decisions for myself; I was incapable. Life just swarmed around me. It bothered me. I had people living with me I didn't want. I did things I didn't want to do. I remember starting the remedies but then I was drinking coffee and she would ask me kindly to stop. Once I did that, I suddenly was finding that I could stand up, make decisions. I didn't have a chemical numbness. I feel like I could actually think for the



first time in my life. I remember being excited to learn about who I really was. What the core of me was about. I couldn't believe it. I could actually focus on what someone was saying and stay focused. Think and not be nervous. And when that happened I could actually begin to experience me... And, through this journey, I call it my new life, she was there every step of the way...sometimes she would encourage me—like when she suggested that I 'go with what your body is telling you'. Sometimes she would say – 'do this or that' or she would give me options. She was someone I knew I could count on (S. 237, lines 103-112, 164-173, 186-188, 224-233,331-336).

The patient-provider relationship is characterized by openness, equality, patience and trust.

She's really easy to talk to. Not like doctor-patient, more like when I have a problem I am comfortable leaving her a message and asking her a question... I know she'll leave me a message back and it doesn't matter that it's not between 9 and 5 and that kind of thing...So, I feel like she's very like professional but also not like a doctor where she's inaccessible...She doesn't expect me to run in for an appointment; she's willing to talk on the phone, no charge... She has a good sense of me. I don't feel like I'm bothering her when I need to talk. I just call her right away and if she's busy she gets back to me right away – like we're equals and I'm important (S212, lines 460-489). He really listened to me, asked a lot of questions, but it didn't seem like he was rushing me to make a diagnosis and to identify a treatment. He was really patient as I told my story, like he didn't care that I was sort of wandering around. I think that I felt like he trusted that I would tell him what I needed to and what he needed to know. I also remember how comfortable I felt, like I was in good hands (S215, 225-230).

He had a different way of approaching everything. It was different almost like he was setting a different tone and pace. I felt like he was "seeing me" or maybe seeing through me and all the stuff that was packed on... he asked a lot of questions - different ones than the other doctors I had seen. It was like he was trying to put together the pieces of a puzzle. Over time, I could tell him anything. He yells at me; I yell at him. It's all good (S223, lines 243-252, 685-689). She cares as though you were a family member, nurturing...The most impressive thing that she did was gave her her personal phone number, her pager, and her cell phone and said, 'if you ever need anything, you can call me anytime, anywhere, and I will get back to you'. She has never broken that trust (S211, lines 254-256, 272-276).

The process itself was described as occurring with periods of ebbs and flows and trial and error.

"Sometimes things happened really quickly—changing overnight. Other times, it felt like things never moved at all, like I was in this place that I could not get out of" (S 215, lines 62–65). "Sometimes it seemed like it was the longest time and we had to try several different remedies before anything at all would change. Then one time, I took three pellets and BAM—instant change—I felt like I was dizzy but when I got myself together, I thought, boy I feel completely better. It was only 10 min" (S223, lines 588–590, 594–596).

Patience was a term repeated across the participants. They were taught to be with themselves "just when I think I can not take it anymore, I have learned things change" (S223, line 778), be patient with the remedy "she told me that we would have to try different dosages and that I would have to wait to see what worked best. That was hard for me but I learned" (S 237, 245–249), and to be patient with the process "I learned to be grateful for the process. It's quite an involved process. It took time and work. But I learned that if I was patient, it does get to a better place. Nothing else worked like this (S226, lines 1,114–1,116).

Through their relationship with the homeopath, participants reported that they learned to pay attention to self and learn through silence.

I learned to trust my soul to speak...Rather than running, searching for the answer, I waited knowing that I would hear when it was time (S229, lines 250-254, 360-361).

I learned to trust the process, the ebb and flow of it, as well as the guide...I learned to listen and hear in a way that I couldn't before (S222, lines 786-794)

I awoke from my coma and I have arrived to my other life...I was able to not only see and hear my mind but I could see and hear my body. I learned to be still and hear (S211, lines 804-809).

Discussion

The participants in this study overall were primarily middle-aged white married women with good global health ratings at the time of interview. These results indicate the patient's phenomenological experience of healing during homeopathic treatment involves two primary components: (1) the transformational experience of healing itself; and (2) the impact of the patient–provider relationship and having a trusted partner in care to facilitate self-exploration



and self-discovery. In this section, we will explore these key structures in detail, seeking to understand the how they inform the patient's overall experience of the healing process and how modern complex systems science can help put the findings into context.

Transformation

The first essential structure of the experience of exemplar or successful healing during homeopathic treatment for chronic illness was identified as the transformative process of coming home to self. This transformative healing process has been explored by many disciplines seeking to understand how such extraordinary global changes lead to overall improvements in health [27–31]. Unsticking (described by this sample as "unknowable yet powerful movement, change or fluctuation") was found to be a powerful component of that transformative healing process.

Unstuckness

During the healing process, patients described a sense of unstuckness that emerged from their treatment. Unstuckness was first described by our research group [32] as freedom or feeling less "stuck". In that study, classical homeopaths identified freedom or "the ease or facility of mental, emotional, spiritual or physical movement, progress or growth" as a significant outcome of homeopathic care or treatment.

Adaptability

These homeopathic patients also describe an increased sense of adaptability and resilience with their treatment. They expressed feeling permission to explore not only their bodily sensations and symptoms but their responses to them. They were encouraged by their providers to "read their bodies" or to take the time to "hear what their bodies were telling them". During treatment, participants described that they learned patience, to "go with the flow" and to "trust the process". They also learned to reach inside themselves for answers, for resources, and for strength. They learned when they needed to get additional advice and treatment. They learned that symptoms were signals that could be used as signposts and guides.

These dynamics have been observed in other fields such as psychology, whereby subjects' emotional well-being was linked with their ability to demonstrate flexibility and adaptability in their behaviors [8, 33, 34]. Moving on or unstuckness thus captures the increased dynamical capacity of some patients following treatment to make various

changes (abrupt, gradual, or subtle) leading to increased adaptability and resilience [8, 35].

Many investigators attribute this increased adaptability and resilience observed in patients undergoing transformative healing processes to a restoration in complex nonlinear dynamics of the human organism [36, 37]. The change manifests in how the individual responds to stressors. Bar-Yam has pointed out the necessity of perturbing a complex adaptive system with a discrete stressor and then observing the pattern of response [38]. The present data are consistent with the emergence of improved resilience in the face of life stressors.

Unpredictability and sweeping change

Another common experience for these patients successfully treated with homeopathy was a sense of unknowing and unpredictability during the treatment process. Some of them describe it as waxing and waning of symptoms. Others describe it as a feeling of ebb and flow. This observation highlights the importance of the need for a longer time frame perspective for evaluating homeopathic treatment of people with chronic diseases. The change itself is an evolving emergent of the interaction between the treatment tool (homeopathic remedy), patient, and provider.

Living systems are inherently nonlinear, dynamic, and complex in their function, and researchers have attempted to model this phenomenon of healing transformation using complex adaptive systems (CAS) theory [3, 33, 37, 39, 40]. CAS can exhibit dynamicity, which emphasizes the ability of the system to change and adapt over time [3, 41]. In this model, nonlinear change is prominent. Small inputs to the system can initiate large magnitude changes distant in time and space from the triggering agent.

Characteristic of complex systems, this progression to a healthier state is also nonlinear, meaning that as the patient's overall health improves, the systemic response to the medicinal stimulus is chaotic and unpredictable. In this study, although many of the participants identified and described marked shifts in multiple life dimensions on a global scale, there are others who experienced a more localized resolution of the chief complaint. Further, there is a subset of participants who describe sweeping life changes that seem to wax and wane over time, signaling perhaps a return to old patterns and the need for continuous "tune-ups" or re-visiting of the homeopathic treatment processes.

Another feature of CAS is self-organization, which describes the emergence of order from disorder [41], resulting in an integrated whole that is greater than the sum of its parts and is different from the simple additive effect of improvements in a list of multiple isolated symptoms. The concept of self-organization is also exemplified



homeopathic practice as many patients experience shifts in the center of gravity of expression of their symptoms. For example, a person whose asthma (a respiratory disorder) has cleared up as a result of homeopathic treatment may temporarily develop eczema (a skin disorder) as part of the healing process.

Homeopathic practice theory attributes this phenomenon to Hering's Law, which states that all true healing (cure) proceeds from the inside out, from the head downward, from the most important organs to the least important (from inside out) and in reverse order of time in which the symptoms originally appeared [42]. Modern interpretations of Hering's Law are grounded in CAS theory, whereby the transformational healing develops out of an interaction of changes at the global and local levels of organizational scale [43].

Focus and purpose: coming home to self

Homeopathic patients also reported experiencing a sense of self-discovery during their homeopathic treatment. This experience of "coming home to self" describes the coordination of various parts of the organism to generate a dynamic whole that is greater than the sum of its parts. In CAS, this process is known as emergence [37, 40, 44]. The observation of the coming-home-to-self experience could reflect conscious recognition of the restoration of system dynamics to healthier patterns of individual wellness. In complex systems terminology, the nonlinear dynamical patterns are attractors or states of being to which the system tend to evolve over time.

In cancer research, the role of attractors is explored in gene network dynamics, investigating how they influence tumor development [45]. In psychology, researchers have found behavioral attractors that manifest as patterns of rigidity in affective disorders including bipolar disorder [33, 46]. A system's propensity to aggregate toward these attractors manifests as dominant, habitual patterns of behavior, resulting in fixed, repetitive actions, even if maladaptive [3]. In these states, the system becomes rigid in its more fixed state as connectivity is decreased and the ability to adapt to changing circumstances or stressors diminishes [35].

Contrarily, in a healthy CAS, the system exhibits optimal complexity for dealing with change and challenge in the surrounding environment. These changes manifest with increased systemic connectivity, freedom, adaptability, resilience and flexibility. Using this model, we begin to understand the current data as reflecting a process toward better health, i.e., a dynamic nonlinear progression from a fixed maladaptive state to a more dynamic, adaptive state in which the organism experiences freedom and global transformation.

Patient-provider relationship

The second essential structure that emerged from data analysis was the value of the patient's relationship with the provider in facilitating the healing process. Investigators in homeopathy are very interested in the therapeutic relationship between the homeopathic practitioner and the patient as they have found provider empathy and availability to be key factor in patients' sense of empowerment and to contribute to clinical improvement and higher patient satisfaction [47, 48]. Patients have also reported the value they place on the whole-person approach taken by homeopathic practitioners as their stories are listened to in depth and clinical complaints are explored in great detail [4, 7].

There is also a need for a trusted partner in care, particularly during periods of uncertainty in the homeopathic prescribing process [11]. The initial prescription requires a degree of openness so patients feel at ease in disclosing personal information that is essential to identifying the most appropriate medicinal treatment [11]. Later in the therapeutic process, uncertainty regarding the prescription may arise, as homeopaths may need to test out an average of three different medicines over a 5-month period to find the most effective medicine for each individual patient [49]. The trial-and-error aspect of treatment is common for most homeopathic patients and requires time to identify the correct remedy [49].

Researchers have found the relationship established between the patient and the provider during a homeopathic consultation to be a crucial component in navigating this period of uncertainty that occurs when searching for the most appropriate medicine for the condition [11]. Patients reported that during this course of homeopathic medicine selection, they valued the mutual respect shared between them and the practitioner and participating in the decisionmaking process [7]. The proportions of homeopaths in this study practicing in a holistic versus integrative style of homeopathy were fairly equal, suggesting that both practice styles can lead to sustained favorable outcomes. The findings highlight the importance of the relationship between the patient and provider as trust, openness, empathy and mutual respect contribute to the unfolding of the complete clinical picture.

Homeopathic treatment as an indivisible package of care

On the other hand, skeptics propose that the therapeutic patient-provider relationship is the only "active" factor in any clinical benefits from homeopathic treatment. They assume that homeopathic medicines contain no active materials and that the mechanism of homeopathic medicines is implausible.



The skeptics' position is therefore that any and all healing responses must be due to "placebo" effects and/or fluctuations in the natural course of the illness [50]. Apart from various debates over study designs and data interpretation in quantitative research on homeopathy, there may be an even more complex element to the nature of the experiences reported by patients during successful homeopathic treatment. Several investigators have proposed that homeopathic treatment involves macro quantum entanglement-like phenomena [51–53]. That is, the patient, symptom pattern, remedy, and practitioner (and placebo, if used in a given study) form a closed system in which what happens to one component can instantaneously affect what happens in a paired component [51].

An entanglement hypothesis for homeopathic effects is still heavily debated even within the field. Now, however, recent basic science studies of homeopathic medicines per se indicate that there are potentially active materials, i.e., nanoparticles of source materials and nano-silica in the medicines [54–60]. Nanomaterials in general are biologically super-potent and have the capacity to exert meaningful effects at very low doses different from those of placebo [58, 61].

Certain very small nanoparticles, sometimes called quantum dots, are empirically associated with macro quantum entanglement and other quantum mechanical phenomena [62–65]. Obviously, further research is needed, but qualitative studies such as the present investigation may help elucidate a systematic way forward in such work to identify any quantum mechanical aspects of patient change in homeopathy. Even if empirically confirmed, such findings on the nature of homeopathic remedies and their effects would contribute to, rather than supercede, the lived human experience of homeopathic treatment.

Even without such an esoteric quantum model, others have also pointed out the more general interconnectedness of treatment components in packages of health care in real world practice. The interactive components would encompass not only the tools (e.g., drugs, surgery, homeopathic medicines, acupuncture needles, or electromagnetic fields), but also the interpersonal communication and behaviors and the overall patient–provider relationship [13, 66–68]. The data indicate that homeopathy, like other forms of CAM, is in its own right a package of care whose medicinal and consultative components are interrelated and inseparable.

The descriptive questionnaire data on the current middle-aged participants do not indicate that these individuals were unusually high in scores on the Marlowe-Crowne Social Desirability scale. Young adult student norms on the 13-item scale show a mean of 5.6 (SD 3.2); a large forensic population (N = 1,096) scored higher at 7.1 on the same short-form [69]. These values bracket those of the current population. It is well-known that middle age would correlate with slightly higher scores on the Marlowe-Crowne scale [70]. Notably, social desirability accounts for only 8 % of the variance in evaluation of chronic disease self-management interventions [71]. Thus, the present participants were not necessarily trying harder than the general middle-aged population to please the interviewer [71]. The current sample's Tellegen Absorption mean scores were also average (college students on this scale reportedly average approximately 20 (SD 6). Taken together, the descriptive psychometric features of the current participants do not provide a simple explanation for the reportedly favorable outcomes that skeptics might wish to propose.

Conclusions

Although case reports abound demonstrating similar transformational changes and improvements in local or global levels of health [10, 72, 73], homeopathy remains a highly debated system of medicine. The present findings support the potential for extensive, even transformational change in a subset of people with chronic diseases who undergo classical homeopathic treatment. The data do not address either qualitatively or quantitatively the relative percent of treated patients who experience these exceptionally positive outcomes or the relative contributions of the patient–provider alliance versus the specific homeopathic medicine to the outcomes.

Recent advances in the nature and effects of homeopathic medicine may provide new insights into the role of the treatment tools per se in patient outcomes [40, 55, 74–77]. As with any qualitative study, the data are not necessarily generalizable to the larger population. Nonetheless, this qualitative glimpse into homeopathic treatment offers the most extensive phenomenological description of exemplar outcomes, the lived human experience of patients with a range of chronic diseases treated successfully within a classical homeopathic model.

This study examined the nature of unstuckness and transformative healing with homeopathic treatment. Current developments in complex adaptive systems (CAS) theory, in combination with findings from this study, have opened an international discussion of unique patient-centered, rather than disease-centered outcomes with whole systems of CAM. This line of research may lead to future comparative analyses and development of more systems-oriented multidimensional clinical outcome scales for homeopathy.

Acknowledgments This work was supported by the National Institutes of Health/National Center for Complementary and



Alternative Medicine (NIH/NCCAM) (R21-AT001319, K24-AT00057, T32-AT01287). The authors wish to thank Maureen Campesino, RN PhD for her assistance in qualitative data coding and analysis in this study.

Conflict of interest Dr. Bell is a consultant for a US-based manufacturer of homeopathic medicines, Standard Homeopathic/Hylands Inc. This company did not provide any support for the preparation or publication of this paper. Dr. Koithan and Ms. Embrey have no conflicts of interest.

References

- 1. Fisher P (2012) What is homeopathy? An introduction. Front Biosci Elite Ed 4:1669–1682
- Barnes PM, Bloom B, Nahin RL (2008) Complementary and alternative medicine use among adults and children: United States, 2007. Natl Health Stat Rep 12:1–23
- Koithan M, Bell IR, Niemeyer K, Pincus D (2012) A complex systems science perspective for whole systems of complementary and alternative medicine research. Forsch Komplement 19(Suppl 1):7–14. doi:10.1159/000335181
- Rise MB, Steinsbekk A (2009) How do parents of child patients compare consultations with homeopaths and physicians? A qualitative study. Patient Educ Couns 74(1):91–96
- Patriani Justo CM, De Andrea Gomes MH (2008) Conceptions of health, illness and treatment of patients who use homeopathy in Santos, Brazil. Homeopathy 97(1):22–27
- Steinsbekk A, Lüdtke R (2005) Patients' assessments of the effectiveness of homeopathic care in Norway: a prospective observational multicentre outcome study. Homeopathy 94(1):10–16. doi:10.1016/j.homp.2004.11.016
- Mercer SW, Reilly D (2004) A qualitative study of patient's views on the consultation at the Glasgow Homoeopathic Hospital, an NHS integrative complementary and orthodox medical care unit. Patient Educ Couns 53(1):13–18. doi:10.1016/s0738-3991(03)00242-8
- Koithan M, Verhoef M, Bell IR, Ritenbaugh C, White M, Mulkins A (2007) The process of whole person healing: "unstuckness" and beyond. J Altern Complement Med 13(6):659–668
- Oberbaum M, Singer SR, Vithoulkas G (2005) The colour of the homeopathic improvement: the multidimensional nature of the response to homeopathic therapy. Homeopathy 94(3):196–199
- Thompson TD (2004) Can the caged bird sing? Reflections on the application of qualitative research methods to case study design in homeopathic medicine. BMC Med Res Methodol 4:4. doi:10. 1186/1471-2288-4-4
- Eyles C, Leydon GM, Brien SB (2012) Forming connections in the homeopathic consultation. Patient Educ Couns 89(3):501–506. doi:10.1016/j.pec.2012.02.004
- Brien S, Lachance L, Prescott P, McDermott C, Lewith G (2011) Homeopathy has clinical benefits in rheumatoid arthritis patients that are attributable to the consultation process but not the homeopathic remedy: a randomized controlled clinical trial. Rheumatology Oxf 50(6):1070–1082. doi:10.1093/rheumatology/keq234
- Bikker AP, Mercer SW, Reilly D (2005) A pilot prospective study on the consultation and relational empathy, patient enablement, and health changes over 12 months in patients going to the Glasgow Homoeopathic Hospital. J Altern Complement Med 11(4):591–600
- Jacobs J, Williams AL, Girard C, Njike VY, Katz D (2005) Homeopathy for attention-deficit/hyperactivity disorder: a pilot randomized-controlled trial. J Altern Complement Med 11(5): 799–806. doi:10.1089/acm.2005.11.799

- Mathie RT, Roniger H, Van Wassenhoven M, Frye J, Jacobs J, Oberbaum M, Bordet MF, Nayak C, Chaufferin G, Ives JA, Dantas F, Fisher P (2012) Method for appraising model validity of randomised controlled trials of homeopathic treatment: multirater concordance study. BMC Med Res Methodol 12(1):49. doi:10.1186/1471-2288-12-49
- Lepine P (1995) Homeopathy's potential for enriching the medical interview. Looking beyond the tiny white pill. Can Fam Physician 41(1649–1651):1658–1660
- van Manen M (1990) Researching Lived Experience: Human Science for an Action Sensitive Pedagogy, 2nd edn. State University of New York Press, Albany
- Lert F, Grimaldi-Bensouda L, Rouillon F, Massol J, Guillemot D, Avouac B, Duru G, Magnier AM, Rossignol M, Abenhaim L, Begaud B (2014) Characteristics of patients consulting their regular primary care physician according to their prescribing preferences for homeopathy and complementary medicine. Homeopathy 103(1):51–57. doi:10.1016/j.homp.2013.09.001
- Jakob B. Bjorner DMT-B SF-36 and SF-12 Health Surveys. Encyclopedia of Medical Decision Making. SAGE Publications, Inc. SAGE Publications, Inc., Thousand Oaks, CA. doi:doi: http://dx.doi.org/10.4135/9781412971980
- Reynolds WM (1982) Development of reliable and valid short forms of the Marlowe-Crowne Social Desirability Scale. J Clin Psychol 38:119–125
- Tellegen A, Atkinson G (1974) Openness to absorbing and selfaltering experiences ("absorption"), a trait related to hypnotic susceptibility. J Abnorm Psychol 83:268–277
- Owens JE, Taylor AG, Degood D (1999) Complementary and alternative medicine and psychologic factors: toward an individual differences model of complementary and alternative medicine use and outcomes. J Altern Complement Med 5(6):529–541
- Research Q (1998) The Ethnograph version 5.0. Qualis Research, Colorado Springs
- 24. Koithan M, Bell I, Campesino M (2005) Holographs and jigsaw puzzles: processes of care and approaches to healing of classical homeopaths. Focus Altern Complement Ther 10(Supplement 1):29
- Sankaran R (2012) The synergy in homoeopathy. Homoeopathic Medical Publishers, Mumbai
- Kent JT (1996) Repertory of the homeopathic materia medica.
 B. Jain, New Delhi
- Aujoulat I, Marcolongo R, Bonadiman L, Deccache A (2008) Reconsidering patient empowerment in chronic illness: a critique of models of self-efficacy and bodily control. Soc Sci Med 66(5):1228–1239. doi:10.1016/j.socscimed.2007.11.034
- Chan CL, Chan TH, Ng SM (2006) The strength-focused and meaning-oriented approach to resilience and transformation (SMART): a body-mind-spirit approach to trauma management. Soc Work Health Care 43(2–3):9–36. doi:10.1300/J010v43n02_ 03
- Koss-Chioino JD (2006) Spiritual transformation, relation and radical empathy: core components of the ritual healing process. Transcult Psychiatr 43(4):652–670. doi:10.1177/ 1363461506070789
- Mehl-Madrona L (2005) Connectivity and healing: some hypotheses about the phenomenon and how to study it. Advances Mind Body Med 21(1):12–28
- Sutton R, Treloar C (2007) Chronic illness experiences, clinical markers and living with hepatitis C. J Health Psychol 12(2):330–340. doi:10.1177/1359105307074278
- Bell IR, Koithan M, Gorman MM, Baldwin CM (2003) Homeopathic practitioner views of changes in patients undergoing constitutional treatment for chronic disease. J Altern Complement Med 9(1):39–50. doi:10.1089/10762800360520785



 Fredrickson BL, Losada MF (2005) Positive affect and the complex dynamics of human flourishing. The American psychologist 60(7):678–686. doi:10.1037/0003-066X.60.7.678

- 34. Hollenstein T (2007) State space grids: analyzing dynamics across development. Int J Behav Dev 31(4):384–396
- Pincus D, Metten A (2010) Nonlinear dynamics in biopsychosocial resilience. Nonlinear Dyn Psychol Life Sci 14(4):353–380
- 36. Bell IR, Caspi O, Schwartz GE, Grant KL, Gaudet TW, Rychener D, Maizes V, Weil A (2002) Integrative medicine and systemic outcomes research: issues in the emergence of a new model for primary health care. Arch Intern Med 162(2):133–140
- Bellavite P, Signorini A (2002) The Emerging Science of Homeopathy. Complexity, Biodynamics, and Nanopharmacology, 2nd edn. North Atlantic Books, Berkeley
- Bar-Yam Y, Epstein IR (2004) Response of complex networks to stimuli. Proc Natl Acad Sci USA 101(13):4341–4345. doi:10. 1073/pnas.0400673101
- Bell IR, Koithan M, Pincus D (2012) Methodological implications of nonlinear dynamical systems models for whole systems of complementary and alternative medicine. Forschende Komplementarmedizin 19(Suppl 1):15–21. doi:10.1159/000335183
- Bellavite P, Olioso D, Marzotto M, Moratti E, Conforti A (2013)
 A dynamic network model of the similia principle. Complement Ther Med 21(6):750–761
- 41. Bellavite P (2003) Complexity science and homeopathy: a synthetic overview. Homeopathy 92(4):203–212
- 42. Brien SB, Harrison H, Daniels J, Lewith G (2012) Monitoring improvement in health during homeopathic intervention. Development of an assessment tool based on Hering's Law of Cure: the Hering's Law Assessment Tool (HELAT). Homeopathy 101(1):28–37. doi:10.1016/j.homp.2011.10.002
- Vazquez A, Dobrin R, Sergi D, Eckmann JP, Oltvai ZN, Barabasi AL (2004) The topological relationship between the large-scale attributes and local interaction patterns of complex networks. Proc Natl Acad Sci USA 101(52):17940–17945. doi:10.1073/ pnas.0406024101
- Bellavite P (2003) Complexity science and homeopathy: a synthetic overview. Homeopathy J Fac Homeopathy 92(4):203–212
- Huang S, Ernberg I, Kauffman S (2009) Cancer attractors: a systems view of tumors from a gene network dynamics and developmental perspective. Semin Cell Dev Biol 20(7):869–876. doi:10.1016/j.semcdb.2009.07.003
- Gottschalk A, Bauer MS, Whybrow PC (1995) Evidence of chaotic mood variation in bipolar disorder. Arch Gen Psychiatry 52(11):947–959
- 47. Bikker AP, Mercer SW, Reilly D (2005) A pilot prospective study on the consultation and relational empathy, patient enablement, and health changes over 12 months in patients going to the Glasgow Homoeopathic Hospital. J Altern Complement Med 11(4):591–600. doi:10.1089/acm.2005.11.591
- 48. Kliems H, Witt CM (2011) The good doctor: a qualitative study of German homeopathic physicians. J Altern Complement Med 17(3):265–270. doi:10.1089/acm.2010.0158
- 49. Frei H, Everts R, von Ammon K, Kaufmann F, Walther D, Schmitz SF, Collenberg M, Steinlin M, Lim C, Thurneysen A (2007) Randomised controlled trials of homeopathy in hyperactive children: treatment procedure leads to an unconventional study design. Experience with open-label homeopathic treatment preceding the Swiss ADHD placebo controlled, randomised, double-blind, cross-over trial. Homeopathy 96(1):35–41. doi:10.1016/j.homp.2006.11.004
- Rutten L, Mathie RT, Fisher P, Goossens M, van Wassenhoven M (2013) Plausibility and evidence: the case of homeopathy. Med Health Care Philos 16(3):525–532. doi:10.1007/s11019-012-9413-9
- 51. Milgrom LR (2012) Toward a topological description of the therapeutic process: part 2. Practitioner and patient perspectives

- of the "Journey to Cure". J Altern Complement Med 18(2):187–199
- Walach H (2003) Entanglement model of homeopathy as an example of generalised entanglement predicted by weak quantum theory. Forschende Komplementarmedizin/Res Complement Med 10(4):192–200
- Hyland ME (2003) Extended network generalized entanglement theory: therapeutic mechanisms, empirical predictions, and investigations. J Altern Complement Med 9(6):919–936
- Barve R, Chaughule R (2013) Size-dependent in vivo/in vitro results of homoeopathic herbal extracts. J Nanostruct Chem 3(18):1–5. doi:10.1186/2193-8865-3-18
- 55. Chikramane PS, Kalita D, Suresh AK, Kane SG, Bellare JR (2012) Why extreme dilutions reach non-zero asymptotes: a nanoparticulate hypothesis based on froth flotation. Langmuir ACS J Surfaces Colloids 28(45):15864–15875. doi:10.1021/1a303477s
- Chikramane PS, Suresh AK, Bellare JR, Kane SG (2010) Extreme homeopathic dilutions retain starting materials: a nanoparticulate perspective. Homeopathy 99(4):231–242. doi:10. 1016/j.homp.2010.05.006
- Upadhyay RP, Nayak C (2011) Upadhyayetal2011HomeopathyasNanomedicine.pdf. Int J High Dilution Res 10 (37):299-310
- Bell IR, Koithan M, Brooks AJ (2013) Testing the nanoparticleallostatic cross-adaptation-sensitization model for homeopathic remedy effects. Homeopathy 102(1):66–81. doi:10.1016/j.homp. 2012 10.005
- Demangeat JL (2010) NMR relaxation evidence for soluteinduced nanosized superstructures in ultramolecular aqueous dilutions of silica-lactose. J Mol Liq 155:71–79
- Elia V, Ausanio G, Gentile F, Germano R, Napoli E, Niccoli M (2014) Experimental evidence of stable water nanostructures in extremely dilute solutions, at standard pressure and temperature. Homeopathy 103(1):44–50. doi:10.1016/j.homp.2013.08.004
- Bell IR, Schwartz GE, Boyer NN, Koithan M, Brooks AJ (2013) Advances in Integrative Nanomedicine for Improving Infectious Disease Treatment in Public Health. Eur J Int Med 5(2):126–140. doi:10.1016/j.eujim.2012.11.002
- Berec V (2012) Quantum entanglement and spin control in silicon nanocrystal. PLoS One 7(9):e45254. doi:10.1371/journal.pone. 0045254
- Budich JC, Trauzettel B (2010) Entanglement transfer from electrons to photons in quantum dots: an open quantum system approach. Nanotechnology 21(27):274001. doi:10.1088/0957-4484/21/27/274001
- 64. Hennessy K, Badolato A, Winger M, Gerace D, Atature M, Gulde S, Falt S, Hu EL, Imamoglu A (2007) Quantum nature of a strongly coupled single quantum dot-cavity system. Nature 445(7130):896–899. doi:10.1038/nature05586
- 65. Yao P, Hughes S (2009) Macroscopic entanglement and violation of Bell's inequalities between two spatially separated quantum dots in a planar photonic crystal system. Opt Express 17(14):11505–11514
- 66. Matthias MS, Krebs EE, Bergman AA, Coffing JM, Bair MJ (2014) Communicating about opioids for chronic pain: a qualitative study of patient attributions and the influence of the patient-physician relationship. Eur J Pain 18(6):835–843
- 67. Jerofke T, Weiss M, Yakusheva O (2014) Patient perceptions of patient-empowering nurse behaviours, patient activation and functional health status in postsurgical patients with life-threatening long-term illnesses. J Adv Nurs 70(6):1310–1322. doi:10. 1111/jan.12286
- So DW (2002) Acupuncture outcomes, expectations, patientprovider relationship, and the placebo effect: implications for health promotion. Am J Public Health 92(10):1662–1667



- Andrews P, Meyer RG (2003) Marlowe-Crowne Social Desirability Scale and short Form C: forensic norms. J Clin Psychol 59(4):483–492. doi:10.1002/jclp.10136
- Stober J (2001) The Social Desirability Scale-17 (SDS-17): convergent validity, discriminant validity, and relationship with age. European Journal of Psychological Assessment 17:222–232
- Nolte S, Elsworth GR, Osborne RH (2013) Absence of social desirability bias in the evaluation of chronic disease self-management interventions. Health Qual Life Outcomes 11(1):114. doi:10.1186/1477-7525-11-114
- Gebhardt C, Hansel J (2008) Whole again: the homeopathic way of healing—13 amazing stories (trans: Buhl J, Elwen S). Narayana Publishers, Kandern
- Bornhoft G, Matthiessen PF (2011) Homeopathy in Healthcare— Effectiveness, Appropriateness, Safety. Costs, Springer-Verlag, Berlin

- 74. Chikramane PS, Suresh AK, Bellare JR, Kane SG (2010) Extreme homeopathic dilutions retain starting materials: a nanoparticulate perspective. Homeopathy 99(4):231–242
- Bellavite P, Marzotto M, Olioso D, Moratti E, Conforti A (2014) High-dilution effects revisited.
 Pharmacodynamic mechanisms. Homeopathy 103(1):22–43. doi:10.1016/j.homp.2013.08.
- 76. Bellavite P, Marzotto M, Olioso D, Moratti E, Conforti A (2014) High-dilution effects revisited. 1. Physicochemical aspects. Homeopathy 103(1):4–21. doi:10.1016/j.homp.2013.08.003
- 77. Bell IR, Sarter B, Koithan M, Banerji P, Banerji P, Jain S, Ives JA (2013) Integrative nanomedicine: treating cancer with nanoscale natural products. Glob Adv Health Med 3(1):36–53

