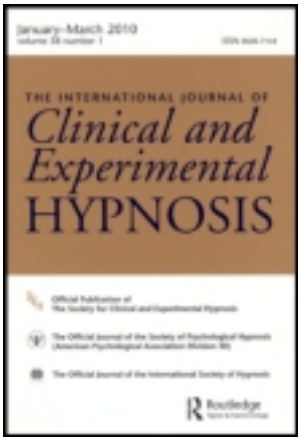

International Journal of Clinical and Experimental Hypnosis
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/nhyp20

Efficacy of Hypnosis in the Treatment of Human Papillomavirus (HPV) in Women: Rural and Urban Samples

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Available online: 03 Dec 2009

To cite this article: Arreed Barabasz, Linda Higley, Ciara Christensen & Marianne Barabasz (2009): Efficacy of Hypnosis in the Treatment of Human Papillomavirus (HPV) in Women: Rural and Urban Samples , International Journal of Clinical and Experimental Hypnosis, 58:1, 102-121

To link to this article: http://dx.doi.org/10.1080/00207140903310899

Intl. Journal of Clinical and Experimental Hypnosis, 58(1): 102–121, 2010

ISSN: 0020-7144 print / 1744-5183 online
DOI: 10.1080/00207140903310899

Routledge
Taylor & Francis Group

EFFICACY OF HYPNOSIS IN THE TREATMENT OF HUMAN PAPILLOMAVIRUS (HPV) IN WOMEN: *Rural and Urban Samples*[1,2]

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Abstract: This article investigates the effect of hypnosis on immunity and whether this is the key mechanism in the hypnotic treatment of the genital infection caused by human papillomavirus (HPV). HPV is the most common sexually transmitted disease and can lead to cervical and other cancers. Current medical treatments are aimed at tissue assault (acids, freezing, surgery). Medical wart clearance rates are only 30% to 70% and reoccurrence is common. Our research contrasted hypnosis-only with medical-only therapies, using both urban hospital and rural community samples. Both hypnosis and medical therapy resulted in a statistically significant ($p < .04$) reduction in areas and numbers of lesions. Yet, at the 12-week follow-up, complete clearance rates were 5 to 1 in favor of hypnosis.

The genital infection caused by human papillomavirus (HPV) is the most common sexually transmitted disease in the United States with an estimated 24 million Americans infected (Gunter, 2003). HPV is diagnostically challenging with the differential diagnosis of condyloma acuminata including molluscum contagiosum, microglandular papillomatosis, condyloma lata, dysplasia, hymenal reminisce, as well as cancer. The causal relationship between genital HPV infections and dysplasia of the uterine cervix leads to cervical cancer (Richart, 1998).

Manuscript submitted October 1, 2007; final revision accepted December 1, 2008.
[1]Professor Dennis Warner, PhD, served as the action editor for this manuscript.
[2]Special thanks are expressed to Professor Dabney Ewin, MD, and Professor Karen Olness, MD, for their comments on a draft of this manuscript.
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In developing countries, cervical cancer, linked to HPV DNA, is the leading female malignancy and a common cause of death in middle-aged women (Bosch & de Sanjosé, 2003).

HPV, like herpes, is viral in nature and, therefore, difficult to eliminate from the body. Despite the once-great hope for HPV treatment by vaccination, given the confirmation of the induction of an adequate immune response, the therapeutic vaccine of HPV-6L 2E7 fusion protein and the ASO2A adjuvant has failed to produce any significant effect on lesion clearance or potentiate the efficacy of conventional therapies (Vandepapeliére et al., 2005).

The management of HPV lesions is complicated by their recalcitrance to current treatments that are not directed at the immunological level, thus viral particles may exist indefinitely in a latent state (Handsfield, 1997; Koutsky, 1997). Recommendations vary among the Centers for Disease Control (CDC), the American College of Obstetrics and Gynecologists (ACOG), and the American College Health Association (ACHA). The CDC's (2002) guidelines for sexually transmitted diseases notes that the current goal of treatment is only the removal of symptomatic warts (e.g., itching, burning). Genital warts in women typically develop in the squamous epithelium of the lower genital tract and cervix with multiple wart sites appearing in nearly half of the patients. The larger lesions may produce obstructive symptoms in the urethra, vagina, or rectum. Multiple lesions can coalesce to produce large condyloma accuminata.

Although there is no experimental evidence to demonstrate that clearing the patient of active lesions decreases the contagiousness of HPV, experienced practitioners believe debulking the area will significantly reduce viable virons and thus diminish contagiousness (Richart, 1998; Stone, 1995). Primarily, current therapies assault the tissue with topical application of medication (acids) administered by physicians (or patients under the direction of physicians) and a range of wart removal techniques by physicians including freezing and surgery.

Patient administered medications include Podofilox (Condylox gel; Oclassen Dermatoligics, Corona, California) and Aldara (Imiquimod; 3M Pharmaceuticals, St. Paul Minnesota). Podofilox (podophyllin resin) is intended to arrest the formation of mitotic spindles to prevent cell division. Initial clearance rates vary from 45% to 80%. Unfortunately, topical application can induce delirium (Stoudemire, Baker, & Thompson, 1981) and reoccurrence is common, with long-term clearance rates typically as little as 30% (Association of Reproductive Health Professionals, 2001). Aldara does not have direct antiviral properties but effectively induces interferon and cytokine release to stimulate cell-mediated immune responses (Dahl, 2000). In contrast to Podofilox, Aldara can produce an initial 50% or greater reduction in wart area in 81% of patients (Edwards et al., 1998). HPV lesion reoccurrence

rates vary from 5% to 19%. However, common side effects include mild to moderate local erythema, which is reported in nearly 70% of the patients, and severe erythema in nearly 6% of patients.

Physician-administered treatments are presently considered the most effective. These include a variety of surgical treatments as well as the use of chemical agents (Rivera & Tyring, 2004). Acids, including bichlor and trichlor acidic acid (BCA/TCA) in up to 90% concentrations, are used on vaginal, cervical, periurethral, and anal warts. When applied by a physician regularly for several weeks, clearance rates can be as high as 80% and reoccurrence as low as 36%. However, many patients discontinue treatment because these caustic agents produce transient burning, may be extremely painful and produce significant erythema as well as swelling (Rivera & Tyring).

Another popular alternative is podophyllin resin, which requires weekly applications for 6 weeks. Clearance rates vary from 30% to 60% with recurrences of 30% to 70%. One of the major limitations of podophyllin resin is that it is extremely neurotoxic and can be used only on small areas that must be allowed to dry after application and be washed off within 6 hours. Pain, reported as intense, occurs within 48 hours of application. Patient compliance with the full course of treatment is, therefore, low. It is contraindicated in pregnant patients and for use in the vagina or the anus (Rivera & Tyring, 2004).

Several surgical treatments are also available for the removal of genital warts. These include cryotherapy, where lesions are frozen with liquid nitrogen or nitrous oxide, surgical removal of condylomata (with scissors and/or scalpel), and electrocautery procedures performed on the lesion site. Such surgical treatments offer the promise of initial clearance rates of 100% (Rivera & Tyring, 2004). However, long-term clearance rates are typically no better than 70% because of the propensity for lesions to recur at the margins (Gunter, 2003).

Seventy percent of patients presenting with HPV will have experienced prior treatment for their condylomata (Gunter, 2003). The vast majority reports dissatisfaction with the previous cyto-destructive medical interventions. This is not surprising given the high lesion-recurrence rates after medical therapies, time to clearance, side effects, and pain. In contrast to procedures involving invasive tissue assault, hypnosis offers the potential of greater patient acceptance. However, it had yet to be tested beyond the case study level or in comparison to medical treatments.

Recognizing the many limitations of medical interventions for HPV, Russell and Barabasz (2001) reviewed the evidence that hypnosis can have an enhancement effect on immune activity (Hall, 1983; Kiecolt-Glaser et al., 1986; Kiecolt-Glaser & Glaser, 1992; Ruzyla-Smith, Barabasz, Barabasz, & Warner, 1995). Several studies, ranging from small groups to fully controlled experimental interventions, have

been devoted to testing the efficacy of hypnosis for virally related (Ewin, 1992) common, cutaneous warts (verruca vulgaris) (Chandrasena, 1982; Dreaper, 1978; Johnson & Barber, 1978; Morris, 1985; Noll, 1994; Reid, 1989; Spanos, Williams, & Gwynn, 1990). There have also been case studies reporting the successful treatment of HPV (Ewin, 1992; Staatmeyer & Rhodes, 1983).

In the most recent and most extensive investigation to date, Ewin (1992) tested hypnotizability on the basis of responses to hypnotic suggestions for catalepsy, eye flutter, age regression (see Barabasz & Christensen, 2006; Christensen, Barabasz, & Barabasz, 2009), and reports of the ability to alter sensation at the wart sites (tingling, cold, or warm). Eight (57%) of 14 patients with condylomata were reported as cured (complete clearance). Five of the "cured" patients responded to direct hypnotic suggestion (see Barabasz & Watkins, 2005, pp. 121–145, 232–233); 3 others who failed to respond to direct hypnotic suggestion were rehypnotized for hypnotically oriented psychotherapy. They were questioned as to the subconscious value these venereal warts might hold. Ewin then, sometimes repeatedly, employed "age regression to the onset and reframing the context" until the patient gave an "ideomotor finger signal that it is OK to let the warts go" (see Watkins & Barabasz's 2008 revision of hypnoanalytic protocols, pp. 54–56, 71, 200). All 3 patients showed clearance of their warts. Despite the lack of standardized hypnotizability testing and lack of a standard medical treatment control group, Ewin's case study findings show promise for hypnosis in HPV treatment.

Recognizing the findings of Ewin's case study research and the data showing hypnosis has significant effects on catalyzing immune function (Hall, 1983; Ruzyla-Smith et al., 1995), we hypothesized that humans' immunologic underreactions to HPV and herpes infections may be responsive to hypnosis. The purpose of this multisite investigation was to test the efficacy of hypnosis therapy in contrast to traditional medical therapies in both a major urban hospital and a rural university community.

METHOD

Participants

Rural sample. Sixteen women volunteered for the study; 8 were referred to the study by physicians, and 8 were recruited by a newspaper advertisement. To facilitate stringent observational objectivity in data collection, the presence of external vaginal warts constituted the entry criteria of the study. All 8 of the physician referrals met this requirement, while half (n = 4) of the newspaper-recruited volunteers met the criteria. The final rural sample consisted of 12 women ages 19 to 58 (mean = 33.1).

All participants were exposed to the same information about medical therapies and hypnosis. They were stringently tested for hypnotizability using the individually administered 12-point Stanford Hypnotic Susceptibility Scale, Form C (SHSS:C; Weitzenhoffer & Hilgard, 1962). Six patients self-selected hypnosis therapy, and 6 selected medical therapy. Symptomatology was measured by physicians' diagrams showing numbers and locations of lesions including widths and lengths to the nearest millimeter. High definition photographs were also obtained to aid evaluation. There was no significant ($p > .05$) difference between groups regarding hypnotizability scores or severity of symptomatology.

Urban sample. Fourteen woman with external vaginal warts were treated at a large urban teaching hospital. Seven women, ages 19 to 48 (mean = 28.4), self-selected hypnosis therapy and were tested for hypnotizability using the SHSS:C. Archival hospital records from 7 women ages 18 to 43 (mean = 26.9) who had received standard physician-administered treatments served as the comparison sample. Pretreatment physicians' diagrams of numbers and locations of lesions including widths and lengths were used as a guide to match their symptomatology to the hypnosis therapy sample. Photographs were not obtained from either urban treatment group.

Instrument

The SHSS:C was chosen as the measure of hypnotizability because it is regarded as the "gold standard" of hypnotic-response assessment (Barabasz & Barabasz, 1992; Barabasz & Watkins, 2005; Perry, Nadon, & Button, 1992). Scoring of the 12-item scale, pass or fail for each item, is based on objective criteria. Test-retest reliability is typically $r = .85$ or better (Kilstrom, 1985). Items are progressively more difficult. After three consecutive failures, the test is discontinued. The discontinuation criterion contributes to the scale's reliability (Sánchez-Armáss & Barabasz, 2005). The test takes approximately 1 hour to administer for participants who qualify for exposure to all 12 items.

Multicultural research on SHSS:C norms shows responsiveness can vary. Predominately Caucasian student samples from the United States (US) showed that 40% scored low (passing 0 to 4 items), 30% scored average (passing 5 to 7 items), and 30% scored high (passing 8 to 12 items) (Bates, 1993). Native Americans show significantly higher hypnotizability scores (Allan, Barabasz, & Barabasz, 2009), as do Mexicans living in Mexico (Sánchez-Armáss & Barabasz, 2005). Responsiveness approximates US norms in other countries including Spain (Lamas, del Valle-Inclán, Blanco, & Diaz, 1996), Italy (De Pascalis, Bellusci, & Russo, 2000), Germany (Bongartz, 2000), and Holland (Näring, Roelofs, & Hoogduin, 2001).

Apparatus

Emulsion-based photographic documentation was obtained using a Polaroid Macro camera, specifically designed for high resolution close-ups in medical settings. The camera we used produced 1X (100%) and 2X (200%) high-definition magnifications of lesion sites. Polaroid high-definition instant self-developing color film was used.

Procedure

All participants were exposed to information about the etiology and transmission of HPV, an explanation about alternative medical treatments, and the availability of hypnosis therapy. Participants choosing hypnosis were exposed to additional information about its use in the treatment of a variety of medical conditions and its specific use for common skin wart (verruca vulgaris) clearance. Expectations for treatment outcome were obtained by independent interviews with the rural sample participants, before treatment and at the 12-week follow-up. A 1-to-10 semantic-differential expectancy rating scale (0 = *I doubt this will work*, 10 = *I am sure this will work*) was employed with the urban sample before treatment and at the 12-week follow-up.

The close-up photographs were obtained before treatment, at 6 weeks, and at 12-week follow-up for all 12 rural participants. Gynecologists measured and diagramed lesions showing size, number, and location before and after treatment for all participants in all groups.

Medical therapy patients in both the rural and urban samples were typically seen biweekly over the 12-week study period for treatment or follow-up, depending upon specific treatment requirements. For all medical therapy cases, the treatment selected was the modality preferred by the treating physicians based on their clinical impressions. Treatments included surgical removal, crytotherapy, and Imiquimod (5%) (Aldara). Patients in the urban hospital sample were seen biweekly at a large university teaching hospital; those in the rural sample were seen weekly in independent practice physician offices.

Hypnosis treatment patients in the rural sample were seen weekly for 12 weeks in a physician's office (1 was seen at her home). Urban sample patients were seen biweekly over 12 weeks in the same hospital described above.

After debunking myths about hypnosis and brief exposures to hypnotic-like experiences (i.e., Chevreul's pendulum swing, arm drop, etc.; see Barabasz & Watkins, 2005, pp. 89–120), the SHSS:C was administered using the standardized induction from the Stanford Hypnotic Clinical Scale (SHCS; Morgan & Hilgard, 1975) to facilitate replicability.

Hypnosis for clearance of warts included hetero-hypnosis at each session (40 to 50 minutes) and instructions for self-hypnosis. Patients in the rural sample (seen by L.H.) were hypnotized using the SHCS

induction, whereas those in the urban hospital setting (seen by A.B.) were exposed to tailored hypnotic inductions (Barabasz & Barabasz, 2006; Barabasz & Christensen, 2006). The tailored inductions are replicable and consistent with those presented in the current hypnotherapeutic techniques texts (Barabasz & Watkins, 2005; Watkins & Barabasz, 2008). In an effort to assure hypnotic depth, patients were given the following instructions: "pick a number; any number that comes to mind first is fine; now please raise a finger when you have doubled that level of hypnotic depth." Observation of the finger raise served as the criterion for completion of the induction phase. Then the following hypnotic suggestions were employed for both groups:

> Your body has the capacity to overcome the wart virus and to heal the infection.
>
> Focus your attention and concentrate on the involved area [pause]. Soon you may notice a sensation of warmth in the surrounding skin [pause]. Your blood vessels dilate to bring in more and more antibodies and white blood cells; more lymphocytes and natural killer cells [pause]. The virus will be destroyed and carried away [pause]. Protein and oxygen increase to help build the new, normal, healing tissue, as the warts disappear. When you feel the increased warmth, a finger will rise . . . [after observation of finger raise] good.
>
> Now your inner mind will lock in on this and maintain this special warmth until the warts are all healed and your skin becomes normal in every way.

The hypnotic suggestion, as recommended by Barabasz and Watkins (2005), was designed to be simplistic and redundant. It was based on the education about both HPV and hypnosis provided to the patients. Further, all components were linked with those used in the previous research cited with specific attention to Ewin's (1992) procedure. Thus, each concept had been substantiated by previous research such as vasodilatation of the infected areas, which has been associated with increased immunity. The self-hypnosis induction procedure was developed on the basis of the Spiegel and Spiegel (1978, 2004) protocol using adaptations from Barabasz, Baer, Sheehan, and Barabasz (1986) and Schoenberger (1996). The following instructions were used for both groups:

> From your experiences in hypnosis, you understand that hypnosis is a state of attention and concentration. Being hypnotized in our sessions together will aid you in your recovery from HPV infection. However, with practice, you may increase your treatment strength by using self-hypnosis.
>
> See if you can arrange for some private, uninterrupted time, two or more times a day, to practice self-hypnosis. Although, with practice, it may only take a minute or two, it's better to allow five to ten minutes for each session.

These instructions will soon become familiar, second nature:

Sit or lie down, and to yourself, you count to three; while you do, focus on doing the following three things. At one you do one thing; at two you do two things; and at three you do three things.

One. Look up toward your eyebrows, all the way up.

Two. Close your eyelids, take a deep breath.

Three. Exhale, let your eyes relax, and let your body relax.

As I feel myself floating, I concentrate on the sensation of floating or just relaxing deeply and at the same time I permit one hand or the other to feel like a buoyant balloon and allow it to float upward. As it does, my elbow bends and my forearm floats into an upright position. Sometimes I may get a feeling of a magnetic pull on the back of my hand as it goes up, or I can just raise it when I am ready. When my hand raises, this is my signal to enter the state of meditation; that we call self-hypnosis. As I concentrate, I may choose to make it more vivid by imagining I am an astronaut in space or a ballet dancer, or whatever else comes up from my unconscious mind.

In this feeling of floating or special calmness, focus on the following hypnotic suggestion: (It's OK to read the suggestion from the script card I will give you.)

My body has the capacity to overcome the wart virus and heal this infection. As I focus my attention on the involved area I will soon notice a sensation of warmth in the surrounding skin. My blood vessels dilate to bring in more antibodies and white blood cells; more lymphocytes and natural killer cells. The virus is being destroyed and carried away. Protein and oxygen will increase to help build the new, normal, and healing tissue, as the warts go away.

I am picturing and feeling my white blood cells increasing in number. They actively seek out and kill the virus.

(You may substitute your own image you feel will help you increase your own immunity.) Give yourself the freedom to spend a few minutes reflecting about the increasing strength in your body by taking control this way.

After no more than two to three minutes, bring yourself out of this state of self-hypnosis by counting backwards in this way:

Now, three, Get ready. Two, with your eyes closed, roll up your eyes. And one, let your eyelids slowly open. Wide awake! Refreshed!

Instructions for a camouflage of self-hypnosis were also provided as follows:

Now, what if hours pass and you want to do the exercise, but you do not have the privacy and do not want to be noticed entering the state of self-hypnosis. Here is a way you can modify the technique so that no one will realize you are going into self-hypnosis.

One, just close your eyes and roll them up. Two, lift your hand to your forehead. (You may be sitting at a table, or a desk. To an outsider the exercise looks like you are studying or thinking about something deeply.) Once the hand touches your forehead repeat the hypnosis suggestion in your mind as best you can recall it. Just let it happen.

By doing the basic or camouflage exercise a few times a day, every day, you will establish a private signal system between you and your body. You will become attuned and alert to this commitment to your body, and cue your body to continue healing itself.

RESULTS

A classic technique for determining the effects of hypnosis per se from extraneous variables and simple nonhypnotic suggestion is to compare treatment outcomes between experimentally selected high (SHSS: C scores 9 to 12) and low (SHSS:C scores 0 to 3) hypnotizable participants (Barabasz et al., 1999). As in the present study, the reality posed by using genuine patients suffering from a specific disorder precluded such an ideal contrast. Our data revealed SHSS:C scores ranged from 4 to 11 (mean = 5.53, *SD* = 2.87) (rural sample: mean = 5.66, *SD* = 3.44; urban sample: mean = 5.42, *SD* = 2.57) with no low hypnotizables meeting typical experimental research criteria and the remainder all at least moderately hypnotizable. Thus, our samples appear likely to be representative of those with HPV who seek treatment. Examples and prepost observations appear in Figures 1 and 2.

Quantitative findings. Clinical evaluation of the pretreatment numbers of lesions and areas revealed no observable apparent significant difference between the groups self-selecting hypnosis versus standard medical treatment. To further test this clinical observation, a two-tailed independent samples *t* test of the areas of HPV lesions in millimeters (mm^2) comparing the two groups was conducted. Consistent with the observation, no significant difference was detected (hypnosis group: mean = 130.53, *SD* = 191.00; medical treatment group: mean = 126.84, *SD* = 193.64; $t = .048$; $df = 24$, $p > .05$; $df = 12$, $p < .05$). There was no pretreatment significant difference in areas of the lesions between the rural and urban samples. Thus, the two hypnosis groups were combined, as were the two medically treated groups, for follow-up analyses.

To test the effects of hypnosis therapy and medical therapy, the areas of HPV lesions in mm^2 measured at the 12-week follow-up were subjected to a correlated samples (pre vs. post) *t* test for each group. Significant treatment effects ($p < .04$) were revealed for both therapies. Omega square results showed strong levels of statistical association from the data revealed substantive positive effects for both treatments. The results appear in Table 1.

Despite the apparent statistical equivalence of the two treatments, inspection of the data was revealing. All 13 of the patients receiving medical therapy showed reductions in areas and numbers of HPV lesions, yet only 1 showed evidence of a complete clearance. One of the patients in the hypnosis group with the announced expectation of a complete cure with hypnosis but with the lowest hypnotizability score

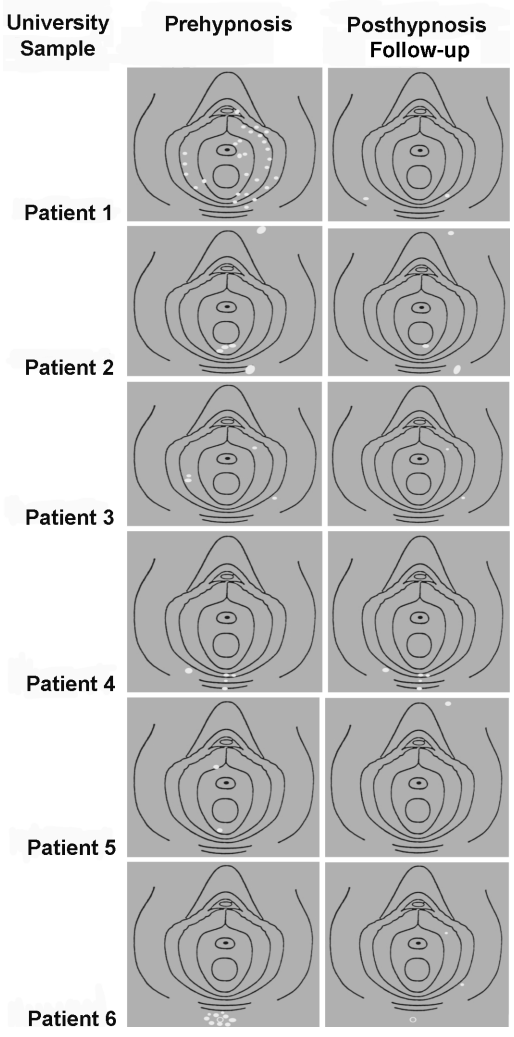

Figure 1. **Physicians diagrams for the university sample shown reverse contrast for printability.**

(SHSS:C score, 4 out of 12) showed no improvement whatsoever in area or number of lesions. In contrast to the medical therapy group showing only 1 complete clearance, 5 of the 13 exposed to hypnosis therapy, regardless of expectations for outcome, showed complete clearance of lesions.

We found the total number of patients cleared in the hypnosis group versus the medical group compelling. We also recognized that the statistical distributions of areas infected and number of lesions did

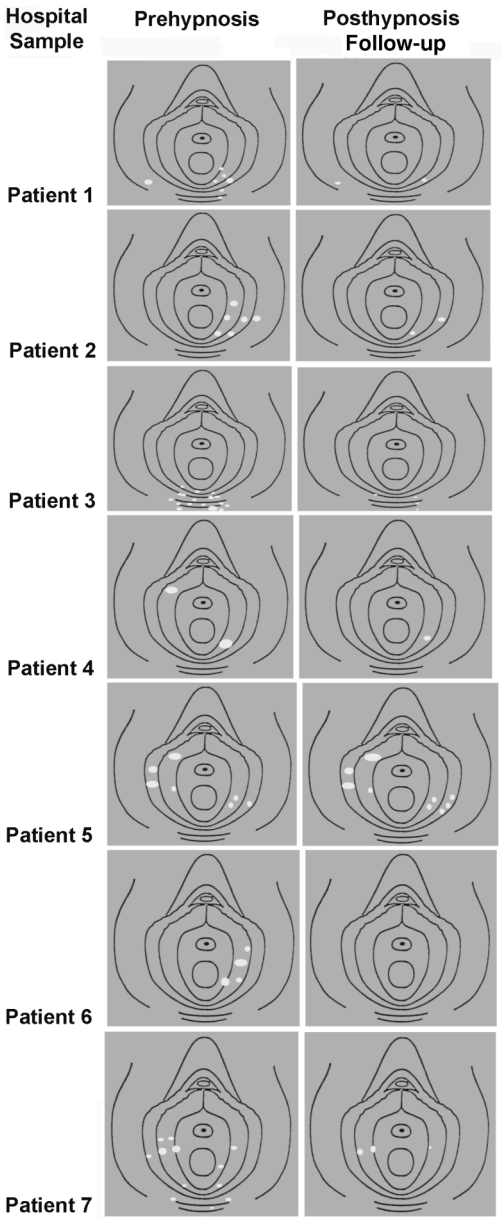

Figure 2. **Physicians diagrams for the hospital sample shown reverse contrast for printability.**

Table 1
t test Results for Areas of HPV Lesions (mm^2) for Hypnosis and Medical Therapies at 12-Week Follow-Up

Groups	Mean		Standard Deviation		*T* value	Omega Squared
	Pre	Post	Pre	Post		
Hypnosis	130.53	6.85	191.00	10.48	2.29*	.233
Medical	126.84	15.69	193.64	21.73	2.28**	.231

*p = .038. **p = .039.

not meet all of the assumptions associated with a parametric statistical analysis. Since the dated argument of statistical robustness has come into question (Erceg-Hurn & Mirosevich, 2008), we opined that the apparent *t* test result might be a type II or beta error. We also considered Hilgard and Tart (1966) who demonstrated that such between-groups comparisons may be insensitive to important differences resulting from the hypnotic intervention, again, a potential type II error.

It was decided that further analysis using a nonparametric test might shed further light. We employed the identical 12-week follow-up data used for the *t* tests in a chi-square analysis of the combined rural and urban medical versus the combined hypnosis samples. Given that the standard of care/treatment of choice is medical therapy, we drew the expected 100% clearance and partial clearance frequencies from both the archival hospital and the rural medical samples. Both medically treated samples reflected typical efficacy responses reported in the literature (Hackett, 1981). The calculation showed that hypnosis therapy produced significantly better ($p < .0001$) wart clearance than medical therapy ($\chi^2 = 16.39$, $df = 1$). The results appear in Table 2.

Table 2
Chi-Square Results for Medical and Hypnosis Treatments

	LESION CLEARANCE		
	100% Number of Patients	Partial Number of Patients	Chi-Square
Medical Tx	1	12	16.39*
Hypnosis Tx	5	8	

*$p < .0001$, $df = 1$.

Expectancy findings and qualitative comments. The urban hospital expectancy ratings and 12-week posttreatment areas of lesions obtained for the hypnosis therapy group were subjected to a rank-order test. The correlation coefficient of –.32 was not statistically significant ($p > .05$), showing no systematic quantitative relationship between expectancy and treatment outcome. The qualitative inquiries were revealing.

Ms. A had the highest hypnotizability score (10) and the most extensive disease (29 lesions) of anyone in the study. Her physician had described confluent lesions covering the upper one third of the vagina and across the cervix despite prior medical treatment. After every weekly hypnosis session, she noted that she felt the increased warmth in her skin for a period of 24 hours. At the medical follow-up, 6 weeks into the study, 25 of the initial external warts had cleared. At 12 weeks, there was complete clearance. Her physician expressed surprise and later admitted the he had been highly skeptical that hypnosis would affect this patient's condition. Furthermore, he had expressed this negative opinion to Ms. A. At the end of the study, she had cleared completely, both internally and externally. Her physician's comment was, "If I hadn't seen it, I wouldn't have believed it." Her abnormal Pap test prior to the study had been graded CIN I, meaning that mild neoplastic changes had been found (a precancerous state). At 12 weeks, the cells from her cervix had reverted to a healthy state as shown by a normal reading on her Pap test, which was maintained 12 months later.

Ms. B fully expected that she would be able to completely clear her infection. Her hypnotizability score was six. At the end of the study she felt angry and disappointed that she had only cleared two of her warts despite her history of failure to respond to four prior medical interventions. She had reduced the area of infection from 58 mm^2 to 38 mm^2. She spoke about her body letting her down. After consultation between Dabney Ewin, MD, the patient, and L.H., the treatment was extended for an additional 6 weeks. Using the protocol as described by Ewin (1992), the patient was hypnotized and inquiry was made regarding the meaning of the warts and whether they might serve some purpose that she might not have recognized on a conscious level. There was no apparent change in area or numbers of lesions after six weekly sessions. She elected to be treated medically with scissor excision for the large lesion and crytotherapy for the two remaining small warts.

Ms. C expressed belief that she could use hypnosis to achieve her (HPV clearance) goal despite her failure to respond to three independent medical interventions. Her hypnotizability score was six. She was able to reduce the involved tissue area by 89% at 12 weeks. She was offered the opportunity to continue with hypnosis, however transportation was a problem, and she chose crytotherapy for the two remaining lesions.

Ms. D expressed belief that she could reduce her HPV lesions although she had failed to respond to three prior medical interventions. She had the lowest score (4) of any patient on the SHSS:C. She was encouraged to try hypnosis by her physician, because "there are many reports in the literature attesting to the fact that even patients who are less hypnotizable can achieve benefit from hypnosis." She reported that she continued to do self-hypnosis throughout the study, as directed in the protocol. However, she mentioned she was easily distracted while practicing at home. She often expressed a wish that she could "go deeper" after her hetero-hypnosis sessions. At the end of the 12 weeks, her HPV status was unchanged (0 clearance).

Ms. E's SHSS: C score (8) was well above average. After taking the hypnotizability test and recognizing her abilities, she was "convinced that she could use her mind to overcome this problem." She spoke weekly about the power she felt in using hypnosis. She practiced self-hypnosis daily. Midway through the study, she had 50% clearance. At the 12-week follow-up, she showed complete clearance. She had no prior medical treatment for HPV.

Ms. F doubted hypnosis was working throughout the entire 12 weeks. Her hypnotizability score was average (6). As had been the actual result of her previous medical treatment by laser, at 6 weeks she had 5 remaining lesions versus an initial 27, yet, she continued to speak about her belief that she would relapse. At each of her last three weekly sessions, she spoke about there being more warts than there had been at the outset. She "fully expected this to be unsuccessful" in reducing the number of her lesions. She was surprised at the last examination when her physician said she was totally clear of all HPV lesions.

DISCUSSION

The majority of medical treatments for HPV considered to represent the standard of care have been used for as long as 100 years. All of these routine procedures, except Imiquidmod (Aldara), involve invasive tissue assault. Both hypnosis and Imiquidmod are unique compared to the other treatments in that the intent is to facilitate activation of the patient's immune response, but unlike hypnosis Imiquidmod effects can only be localized to the lesion sites. Unfortunately, like the other medical treatments, Imiquidmod irritates adjacent tissue and effectiveness is limited to 45% to 80% response rates. In contrast, hypnosis, with a 50-year history of successful treatment of common skin warts (verruca vulgaris) (Shenefelt, 2000), provides a noninvasive treatment for HPV that is safe even for pregnant women.

Our investigation represented two potentially very different treatment populations and venues. Patients self-selected their treatments in

consultation with physicians with the option of hypnosis therapy for all but the archival medically treated subsample. Given the well-documented problems with adjacent tissue damage, pain, and associated failure of patients' compliance with full courses of medical treatments, we sought to shed light on the efficacy of hypnosis.

Both the hypnosis and medical procedures resulted in statistically significant reductions in areas and numbers of lesions. Both showed strong levels of statistical association from the data that were supported by omega square results. Yet, at the 12-week follow-up, 5 hypnosis therapy patients showed complete clearance, whereas only 1 patient in the medical group showed complete clearance. This difference, showing greater efficacy for hypnosis, was statistically significant with only a 1000th of 1% probability these results could have occurred by chance! Caution must be observed, given our sample of only 26, but if confirmed by further research this research could be of special importance on two levels.

The dramatic difference in 100% clearance rates favoring hypnosis is supported by the general research on the effects of hypnosis on the immune system. As in the studies showing direct hypnosis effects on numbers of t-cells, B-cells, helper, and suppressor cells (Ruzyla-Smith et al., 1995), one could speculate that hypnosis as used in the present study may be operating specifically at the immunological level.

We suggest that the next level of HPV-hypnosis research should focus on HPV DNA assays (Koutsky, 1997) as part of both selection and outcome measures. HPV-6 and HPV-11 are associated with low risk of clinically significant neoplasia, while others, most notably HPV-16 and HPV-18, typically progress to high-grade lesions and malignancy (Trofatter, 1997). Such dot-blot hybridization or polymerase-chain retention tests are labor intensive to run. However, they might reveal alternative specific effects for hypnosis versus medical therapy for the various DNA types. The findings might eventually offer key information regarding physician-determined patient selection to hypnosis versus medical treatments.

Our finding of a significant efficacy advantage for hypnosis over medical therapy regarding clearance suggests immunological links that should be pursued with a view to implications for the prevention of cervical cancers. This likely direct effect on immunomodulation is supported by independent nonwart-related research reviewed in the introduction to this article. Furthermore, a search of the literature to 2009 reveals only one study of wart reoccurrence 7 years later, which was 100% healed in 5 days after a second hypnosis session. Nonetheless, further systematic research is needed to compare long-term maintenance of 100% clearance between medical and hypnosis interventions at standard 5-year follow-ups.

Our findings regarding expectancies, at both the quantitative and qualitative levels, are consistent with the most recent experimentally controlled research, which used 90 participants (Benham, Woody, Wilson, & Nash, 2006; see Barabasz & Perez, 2007 for a review of the significance of this finding). Thus, the effects of hypnosis on HPV lesions reflect a trait-like ability that determines how much an individual benefits from hypnosis apparently independent of attitudes and expectations.

If hypnosis continues to show significantly better maintenance of clearance, that alone would have a highly significant effect on the reduction of contagion rates versus medical therapies. Research combining both medical and hypnosis treatments should be continued. This approach may be the most beneficial. Both hypnosis and medical treatments significantly reduce the number of lesions. However, the significantly greater rate of complete clearance with hypnosis in the context of independent research showing hypnotic influence on the immune system versus medical treatments aimed at symptom removal points clearly to the likelihood that the key effect of hypnosis in the treatment of HPV is at the immunological level.

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Effektivität von Hypnose bei der Behandlung von Human Papillomavirus (HPV) bei Frauen in ländlichen und städtische Stichproben

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Zusammenfassung: Dieser Artikel untersucht die Effekte von Hypnose auf Immunfaktoren und ob es sich hierbei um einen Schlüsselmechanismus

bei der hypnotischen Behandlung der Genitalinfektion HPV handeln könnte. HPV stellt eine weit verbreitete, sexuell übertragbare Erkrankung dar und kann zu Cervix sowie weiteren Krebsarten führen. Die gängigen medizinischen Maßnahmen zielen vor allem auf das Gewebe ab (Säuren, Befrostung, Operation). Medizinische Warzenbehandlung ist allerdings nur zu 30–70% erfolgreich und das Wiederauftreten ist häufig. Unsere Forschung kontrastiert die alleinige hypnotische Behandlung mit der ausschließlich medizinischen. Die untersuchten Stichproben stammten dabei aus ländlichen und urbanen Gemeinden. Sowohl hypnotischen als auch die medizinische Behandlung ergaben eine statistisch signifikante Reduktion ($p < .04$) bezüglich der Fläche und der Menge an Läsionen. Bei der Nachuntersuchung nach 12 Wochen lagen die Beseitigungsraten allerding im Verhältnis 5:1 zugunsten von Hypnose.

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Efficacité de l'hypnose dans le traitement du papillomavirus chez les femmes : Échantillons ruraux et urbains

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Résumé: Les auteurs de cet article ont étudié l'effet de l'hypnose sur l'immunité et ont cherché à savoir si celui-ci serait le principal mécanisme dans le traitement par hypnose d'infections des voies génitales causées par le papillomavirus. Le papillomavirus est la cause la plus fréquente d'une ITS, et il peut causer le cancer du col de l'utérus et d'autres cancers. Les traitements médicaux actuels sont axés sur l'agression des tissus (acides, gel, intervention chirurgicale). La disparition des verrues génitales n'est que de 30 à 70% et la récidive est fréquente. Notre recherche a établi les similitudes et les différences entre l'hypnose seule et les thérapies médicales, à partir de patients échantillonnés en milieu hospitalier, tant urbain que rural. L'hypnose et les thérapies médicales ont toutes deux entraîné une réduction significative ($p < 0,04$) de la superficie et du nombre des lésions. Et pourtant, au moment du suivi ayant eu lieu 12 semaines plus tard, la disparition complète des lésions était de 5 pour 1 en faveur de l'hypnose.

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Eficacia de la hipnosis en el tratamiento del Virus del Papiloma Humano (VPH) en la mujer: Muestras rurales y urbanas

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Resumen: Este trabajo investiga el efecto de la hipnosis en la inmunidad y si este es el mecanismo clave en el tratamiento hipnótico de la infección genital causada por el virus del papiloma humano (VPH). El VPH es la enfermedad de transmisión sexual más común y puede conducir a cáncer cervical y otros cánceres. Los tratamientos médicos actuales se dirigen contra los tejidos (ácidos, congelación, cirugía). Las tasas médicas de aclaración de

las verrugas son sólo de 30 a 70% y la recurrencia es común. Nuestra investigación contrastó terapias de solamente hipnosis con solamente tratamiento médico, utilizando muestras en hospitales urbanos y rurales. Tanto la hipnosis como la terapia médica produjeron una reducción estadísticamente significativa ($p < .04$) en las superficies y número de lesiones. Sin embargo, en el seguimiento a las 12 semanas, las tasas de aclaración completa de las verrugas estuvieron 5 a 1 en favor de la hipnosis.

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