

Benefits of Medical Clowning: A Summary of the Research

February 2017



Benefits of Medical Clowning: A Summary of the Research

By Amy J. Stephson¹

I. EXECUTIVE SUMMARY

The power of medical clowns to help bring healing and well-being to a wide variety of patients is supported by considerable anecdotal evidence – from the patients themselves, their families, and the medical providers who work with them. Room Circus Medical Clowning has years of such evidence. Importantly, this healing power is also supported by a host of medical studies conducted over the last decade by researchers in both the U.S. and abroad.

The research discussed in this paper shows the positive impact of medical clowns in a range of pediatric settings and situations:

- They reduce children’s pre-operative anxiety and their experience of pain during invasive procedures such as venous blood draws, urologic surgery, and allergy skin prick tests.
- They aid in healing children’s respiratory infections.
- They improve the mood and well-being of severely disabled children.
- They reduce sexually abused children’s resistance to anal-genital examination.
- They help improve autistic children’s ability to communicate and form personal connections.
- They help reduce the stress experienced by parents and the nursing staff working with hospitalized children.

Research also shows that medical clowns have a significant positive impact on adults in a range of settings and situations:

- They improve the well-being and behaviors of adults with dementia and Alzheimer’s disease, increasing their responsiveness and happiness and decreasing their agitation and other negative behaviors.
- They improve the quality of life of patients in outpatient oncology and dialysis wards, also relieving the burdens of family members and assisting medical staff.
- They help adults in psychiatric wards, increasing positive attitudes and reducing disruptive behaviors.
- For women undergoing in vitro fertilization and embryo transfer treatment, interactions with medical clowns significantly improved pregnancy rates.

In short, research shows that medical clowns are not just entertainers or a nice “extra.” Rather, they are highly trained professionals who play a vital role in the treatment of children and adults in hospitals and other healthcare facilities, helping the patients, their families, and the medical staff.

II. DISCUSSION

A. Definition of “Medical Clowns”

Medical clowns – also called “therapeutic clowns” or “clown doctors” – are trained professional performers who use improvisation, physical comedy, magic, puppetry, and music to bring laughter, physical and mental well-being, and hope to patients. Their work also has significant positive effects on the patients’ families and the medical staff who work with them.

In addition to the usual tools of the trade, medical clowns use specialized props, adapting common medical devices to comic purpose, e.g., honking blood pressure cuffs, slide whistle syringes, and stethoscope telephones. As appropriate, they may do comic medical procedures, e.g., red nose transplants. They are schooled in infection control, hygiene, confidentiality, and medical facility protocols. Typically, each clown has a doctor persona and name (“Dr. Hamsterfuzz” “Dr. Balloon Cheeks”).

Underlying the work of medical clowns are empathy, sensitivity, and an ability to adapt their skills to the physical and emotional state of each individual patient – or even an entire room. They engage by following the patient’s lead, evoking humor through authentic connection and trust.² They also use the traditional role of the clown – powerless, confused, naïve and prone to mistakes yet persistent and hopeful – to empower patients in a setting that for them is often scary and out of control.

B. Physiological and Psychological Benefits from Laughter

Laughter has well-known positive physiological effects. A basic part of our biology, laughter has been shown to activate the older subcortical areas of the brain and to elicit connectedness and joy.³ Laughter decreases the stress hormones cortisol and epinephrine⁴ and increases the release of positive neuropeptides and beta-endorphins.⁵ It also increases oxygen intake, stimulates the heart, lungs and muscles, and can reduce tension, anxiety and anger.⁶ Laughter has also been shown to improve immune function.⁷

One of the key effects of laughter in the medical setting is that it decreases the perception of pain and increases pain thresholds. A series of six British experimental studies, for example, showed that as a result of the release of endorphins, pain thresholds were significantly higher after laughter than in the control situation. It further found that this effect was due to laughter itself, not simply a positive experience, and that comedy in a group setting was more effective than simply watching a comic video.⁸ Similarly, a study at UCLA showed that children showed significantly greater pain tolerance while watching funny videos.⁹

It is significant that laughter is social and can be “contagious.” One researcher, for example, found that laughter is 30 times more likely to occur in a social context as when a person is alone.¹⁰ Humorous videos, while potentially helpful, do not replace medical clowning – a highly social activity.

C. Benefits of Medical Clowns: Children

1. Invasive medical procedures

Many of the studies done to date have involved children. These studies have shown that a range of therapeutic benefits occur when clowns are included on the medical team:

- Preoperative anxiety is very common among children and can result in negative consequences that may last for months afterward. Several randomized studies by different researchers showed that the presence of clowns in pre-operative settings reduces this anxiety.¹¹ A meta-analysis of the studies on this issue concluded that the pre-operative presence of clowns had a *great* effect on reducing the children's anxiety.¹²
- A 2015 study was conducted in Israel of children ages 2 to 16 undergoing outpatient urologic (penile) surgery. For one group, the surgical team in the operating room included a medical clown; in the other no clown was present. The study showed that the clown's participation was tied to less anxiety for the children before and after surgery, less time in the operating room, lower levels of pain, and shorter time to discharge from the hospital. Cost savings also resulted from the reduced time in the operating room and post-operative unit.¹³
- In a recent randomized, controlled and blinded study, 91 children with a mean age of 8.2 years were given allergy skin prick tests, a source of anxiety and pain. Half of the children were accompanied by medical clowns. The study found that the medical clowns significantly decreased the pain perceived by the young children as well as the anxiety perceived by both the children and their parents.¹⁴
- Another recent randomized controlled study involving 100 children ages 2-10 years old undergoing a venous blood draw showed that the presence of medical clowns reduced both the child's anxiety and the duration of his or her crying.¹⁵ An earlier controlled study of the effect of a medical clown in the emergency room during intravenous cannulation or taking of blood samples also showed that the clown's presence led to reduced pain scores in younger children and improved success in IV placement (100% success rate with clowns vs 90% without).¹⁶

2. Other pediatric situations

Respiratory infections. A randomized, controlled trial in Colorado showed that the symptoms of illness in children hospitalized for respiratory infections disappeared earlier in the group that interacted with medical clowns than in the group that did not. The study also showed that the clown interaction led to significantly lower diastolic blood pressure and respiratory frequency.¹⁷

Disabled children. Researchers compared the effect of therapeutic clowns vs. humorous television shows on 10 severely disabled children in an in-patient long-term rehabilitation setting. The study showed that the clowns had an overall positive effect on mood and well-being, even on profoundly disabled children.¹⁸

Sexually abused children. Quasi-experimental studies show that the presence of medical clowns can reduce the intense fear experienced by many sexually abused children facing an anal-genital

examination. According to the researchers, the presence of a clown enables the child to distinguish between the assault and the examination, thus lowering their resistance to the procedure.¹⁹

Pediatric mental health. A research paper noted that observing how pediatric psychiatry patients interact with medical clowns gives physicians vital information about their young patients.²⁰

Autism. New research conducted in Israel involved five autistic children who attended 12 weekly meetings at which the child would first meet with a medical clown after which the two would be joined by a normally developing child of the same age. The study found that these interactions improved the autistic children's ability to communicate and form personal connections, both within and after the study.²¹

Effect on staff and parents. A pilot study in Michigan sought to determine the effects of therapeutic clowns on nurses working with hospitalized children. It showed that the clowns reduced the nurses' negative mood states and improved communication, role negotiation, and the meaning of the unit as a social and physical space.²² Other research has also shown the positive effect of medical clowns on hospital staff and the ease with which they can do their jobs.²³ This includes the clowns' ability to help resistant patients be more amenable to treatment.

D. Benefits of Medical Clowns: Adults

While most of the research has been done in pediatric settings, another area with promising research involves therapy clowns (sometimes called "elder clowns") interacting with individuals with dementia or Alzheimer's.

- A study in Ontario, Canada, examined the impact of clown visits on long-term residents with moderate to severe dementia over a three-month period. It showed that even individuals with severe dementia both responded to and initiated playful and imaginative interactions with the clowns.²⁴

Two other studies showed that after nursing home residents with Alzheimer's or dementia interacted with therapy clowns, they exhibited significantly lower levels of aggression, both verbal and physical.

- In a recent Canadian study, a pair of elder clowns visited nursing home residents twice a week for 12 weeks, interacting for about 10 minutes each visit. The study found that the clown visits reduced moderate to severe behavioral and psychological symptoms of Alzheimer's patients and reduced outbursts.²⁵
- In a 2011 Australian study, the residents participated in weekly two-hour clowning sessions for three months, following which there was a 20% overall reduction in agitation among the patients that lasted for months after the sessions. The effect on agitation was on par with that brought about by psychotropic drugs. The boost in happiness and positive behaviors seen during the program, however, faded after the program ended, showing the benefits of ongoing clown programming.²⁶

Research involving clowns and other adult populations has also shown promise. Adult chronically ill or psychiatric patients, for example, have been shown to benefit significantly from interacting with medical clowns:

- In a 2004 Israeli study, clowns visited the oncology, hemato-oncology, and dialysis wards 12 hours per week. Records showed that the clown interactions improved the patients' quality of life, relieved the burdens experienced by family members and visitors, and assisted the medical staff in doing their jobs.²⁷
- A 2007 German pilot project indicated that a clown visiting a psychiatric ward for acutely ill geriatric patients for six weeks led to more positive attitudes among the patients.²⁸
- A 2004 study in Spain showed that disruptive behaviors among patients hospitalized in a psychiatric ward were significantly reduced when hospital clowns visited twice a week during an 83-day-long study period as compared to an 83-day baseline period without the clowns.²⁹

Most interesting, perhaps, was a study that examined whether interaction with medical clowns would improve the pregnancy rates of women undergoing in vitro fertilization and embryo transfer treatment. The theory was that stress reduction might improve fertility. The sample included 219 patients: 110 who interacted with medical clowns and 109 who did not. The pregnancy rate in the clown group was 36.4% compared with 20.2% in the control group. Using a multivariable analysis, the clown group had a 2.67 higher odds of pregnancy.³⁰

III. CONCLUSION

Research shows that medical clowns are not just a nice “extra.” Rather, they are highly trained professionals who play a vital role in the treatment of children and adults who are hospitalized or in other healthcare facilities – helping the patients, their families, and the medical staff working with them. Employed properly, medical clowns can serve as important members of medical teams in a wide variety of health care settings.

REFERENCES

¹ The author thanks Victoria Millard and David Avery, MD, for their contributions to this paper.

² Two articles that explain well the work of medical clowns are:

- a) Finlay F, Baverstock A, and Lenton S. Therapeutic clowning in paediatric practice. *Clinical Child Psychology and Psychiatry* 2014. Vol. 19(4) 596-605.
- b) “The Hospital Clown: A Cross Boundary Character.” Tom Doude van Troostwijk. In “Making Sense of Stress, Humour and Healing, edited by Aubrey D Litvack. 2006.

³ Panksepp, J. Neuroevolutionary sources of laughter and social joy: Modeling primal human laughter in laboratory rats. *Behavioural Brain Research* 182 (2007) 231-244.

⁴ Berk LS, Tan SA, Fry WF, Napier BJ, Lee JW, Hubbard RW, Lewis JE, Eby WC. Neuroendocrine and stress hormone changes during mirthful laughter. *Am J Med Sci*, 1989 Dec; 298(6): 390-6.1989.

⁵ Berk L and Tan S. [Beta]-Endorphin and HGH increase are associated with both the anticipation and experience of mirthful laughter. *FASEB Journal* 2006; 20: A382.

⁶ “Stress relief from laughter? It’s no joke.” www.mayoclinic.org.

⁷ Bennett MP, Lengacher C. Humor and Laughter May Influence Health IV: Humor and Immune Function. *eCAM* 2009; 6(2) 159-164. See also, Bennett MP, Zeller J, Rosenberg L, McCann J. The Effect of Mirthful Laughter on Stress and Natural Killer Cell Activity. *Alternative Therapies*, Mar/Apr 2003. Vol. 9, No. 2.

⁸ Dunbar R, Baron R, Frangou A, Pearce E, van Leeuwen E, Stow, J, Partridge G, MacDonald I, Barra V, van Vugt M. Social laughter is correlated with an elevated pain threshold. *Proc. R. Soc. B.* (2012) 279, 1161-1167.

⁹ Stuber M, Dunay Hilber S, Libman Mintzer L, Castaneda M, Glover D, Zeltzer L. Laughter, Humor and Pain Perception in Children: A Pilot Study. *Evidence Based Complementary Alternative Medicine*. 2009 June; 6(2): 271-276. This article includes references to a number of studies around the world indicating that laughter is good medicine for a variety of ailments.

¹⁰ Provine, R. Laughter as a Scientific Problem: An Adventure in Sidewalk Neuroscience. *The Journal of Comparative Neurology*. 2016. 524:1532 – 1539.

¹¹

- a) Gozal Y, Koteck A, Mimouni F. Preoperative Anxiety in Children: Medical Clowns vs. Oral Midazolam. Proceedings of the 2010 Annual Meeting of the American Society of Anesthesiologists.
- b) Golan G, Tighe P, Dobija N, Perel A, Keidan I. Clowns for the prevention of preoperative anxiety in children: a randomized controlled trial. *Pediatric Anesthesia* 2008.
- c) Vagnoli L, Caprilli S, Robiglio A, and Messeri A. Clown Doctors as a Treatment for Preoperative Anxiety in Children: A Randomized, Prospective Study. *Pediatrics* 2005; 116; e563-e567.

¹² Zhang, Y, Yang Y, Wing YT Lau, Garg S., Lao J. The effectiveness of pre-operative clown intervention on psychological distress: A systematic review and meta-analysis. *Journal of Paediatrics and Child Health* 2016.

¹³ Kocherov S, Hen Y, Jaworowski S, Ostrovsky I, Eidelman A, Gozal Y, Chertin B. Medical clowns reduce pre-operative anxiety, post-operative pain and medical costs in children undergoing outpatient penile surgery: A randomized controlled trial. *Journal of Paediatrics and Child Health* 2016; 52: 877-881. See also, “Clowning Around May Be good Medicine for Kids Facing Surgery,” *U.S. News*, Robert Preidt, May 15, 2015.

¹⁴ Goldberg A, Stauber T, Peleg O, Haunka P, Eshayek L, Confino-Cohen R. Medical clowns ease anxiety and pain perceive by children undergoing allergy prick skin tests. *Allergy* 2014; 69: 1372-1379.

¹⁵ Meiri N, Ankri A, Hamad-Saied M, Konopnicki M, Pillar G. The effect of medical clowning on reducing pain, crying, and anxiety in children aged 2-10 years old undergoing venous blood drawing – a randomized controlled study. *European Journal of Pediatrics* 2016. 175: 3; 373-379.

¹⁶ Wolyniez I, Rimon A, Scolnik D, Gruber A, Tavor O, Haviv E, and Glatstein M. The Effect of a Medical Clown on Pain During Intravenous Access in the Pediatric Emergency Department: A Randomized Prospective Pilot Study. *Clinical Pediatrics* 2013 52 (12) 1168-1172.

¹⁷ Bertini M, Isola E, Paolone G, Curcio G. Clowns benefit children hospitalized for respiratory pathologies. *Evidence-Based, Complementary & Alternative Medicine* 2011; 2011:879125.

¹⁸ Kingsnorth S, Blain S, McKeever P. Psychological and Emotional Responses of Disabled Children to Therapeutic Clowns: A Pilot Study. *Evidence-Based, Complementary & Alternative Medicine* Volume 2011: 732394.

-
- a) Tener D, Lang-Franco N, Ofir S, Lev-Wiesel R. The Use of Medical Clowns as a Psychological Distress Buffer During Ano-genital Examination of Sexually Abused Children. *Journal of Loss and Trauma*. 2012; 17:12-22.
 - b) Tener D, Lev-Weisel R, Lang-Franco N, Ofir S. Laughing Through This Pain: Medical Clowning During Examination of Sexually Abused Children: An Innovative Approach. *J Child Sex Abuse*; 2010; 19(2):128-140.

²⁰ Henderson, S, Rosario, K. But Seriously: Clowning in Children's Mental Health. *J. Am. Acad. Child Adolescent Psychiatry*, September 2008; 47:9.

²¹ "New research shows medical clowns can help autistic kids," *Israel International News*, January 11, 2017.

²² Blain S, Kingsnorth S, Stephens L, McKeever P. Determining the effects of therapeutic clowning on nurses in a children's rehabilitation hospital. *Arts & Health* 2011, 4 (1):26-38.

²³ Nuttman-Shwartz O, Scheyer R, Tzioni H. Medical Clowning: Even Adults Deserve a Dream. *Social Work in Health Care*. 2010 49:581-598.

²⁴ Kontos P, Miller K-L, Mitchell GJ, Stirling-Twist, J. Presence redefined: The reciprocal nature of engagement between elder clowns and persons with dementia. *Dementia* 2017; Vol. 16(1) 46-66.

²⁵ Kontos P, Miller KL, Colobong R, Palma Lazgare LI, Binns M, Low LF, Surr C, Naglie G. Elder-Clowning in Long-Term Dementia Care: Results of a Pilot Study. *J. Am Geriatric Soc.*, 2016 Feb; 64(2): 347-53.

²⁶ "Laughter Might Be Good Medicine for Alzheimer's Patients" by Alan Mozes, *HealthDay*. www.medicinenet.com (September 30, 2011); University of New South Wales, "Humor as effective as medication in treating agitation in dementia." *ScienceDaily*, 23 September 2011.

²⁷ Nuttman-Schwartz O, et al., note 22.

²⁸ Wild B, Wetzel P, Gottwald U, Buchkremer G, Wormstall H. A pilot project with clowns in psychiatric clinics. *Nervenarzt*, 2007 May; 78(5): 571-4.

²⁹ Higuera A, Munoz J, Idini E, Ortiz A, Rincon F, Prieto-Merino D. Effects of a humor-centered activity on disruptive behavior in a general hospital psychiatric ward. *International Journal of Clinical and Health Psychology*. 2006, Vol. 6, No. 1, pp. 53-64.

³⁰ Friedler S, Glasser S, Azani L, Freedman L, Raziell A, Strassburger D, Ron-El R, Lerner-Geva L. The effect of medical clowning on pregnancy rates after in vitro fertilization and embryo transfer (IVF-ET). *Fertility and Sterility*, 2011; 95:2127-30..