

INTERNATIONAL BODY PSYCHOTHERAPY JOURNAL

THE ART AND SCIENCE OF SOMATIC PRAXIS

INCORPORATING US ASSOCIATION FOR BODY PSYCHOTHERAPY JOURNAL

volume fourteen • number one • spring 2015



EUROPEAN
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International Body Psychotherapy Journal
The Art and Science of Somatic Praxis
 (formerly US Association for Body Psychotherapy Journal)
 volume fourteen · number one · spring 2015

The International Body Psychotherapy Journal (IBPJ) is a peer-reviewed, online journal, published twice a year in spring and fall. It is a collaborative publication of the United States Association for Body Psychotherapy (USABP) and the European Association for Body Psychotherapy (EABP). It is a continuation of the USABP Journal, the first ten volumes of which can be ordered through the website <http://www.ibpj.org/subscribe.php>.

The Journal's mission is to support, promote and stimulate the exchange of ideas, scholarship and research within the field of body psychotherapy as well as to encourage an interdisciplinary exchange with related fields of clinical theory and practice through ongoing discussion.

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Print subscriptions: <http://www.ibpj.org/subscribe.php>
 Printed single issue Members €17.50, Non-members €20
 Yearly subscription: Members €30, Non-members €35
 Two-year subscription: Members €55.00, Non-members €60.
 Payment through bank transfer, American Express or PayPal.
Changes of address: secretariat@eabp.org
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Translation The online Journal is published in the English
 language. Abstracts of articles are to be found on the IBPJ
 website in Albanian, French, German, Greek, Hebrew, Italian,
 Portuguese, Russian, Serbian and Spanish. [http://www.ibpj.org/
 archive.php](http://www.ibpj.org/archive.php)
 If an article originally written in another language has been
 accepted for publication in English, the full article may also be
 found in the original language.

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volume fourteen ● number one ● fall 2015

RESEARCH ISSUE

Guest Editor: Jennifer F. Tantia, PhD, BC-DMT

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Editorial Introduction

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Jacqueline A. Carleton, PhD

It has been 10 years since we have had an issue devoted to research. Because my own interests have evolved as more clinical and theoretical, it felt delicious to place the 2015 Research Issue wholly in the expert hands of Jennifer Tantia, PhD, former Research Chair of the USABP. She has handled editing tasks from the initial call for papers for this special issue devoted to research through the peer review process to final copyedits. And, as you will see as you peruse this issue, she has done a terrific job. *

In a field such as ours, which was marginalized or which marginalized itself for many years, research, in the support of evidence-based practice, is a key to mainstream acceptance. Psychologists of many stripes are currently very interested in our techniques, theories, and ways of viewing both psychotherapy and the human condition. But, without research to back up what we know clinically, it is hard for them to learn from us.

On the EABP website, www.eabp.org, all you have to do is select the button marked Research to unleash a wealth of resources and materials that have been collected over the years, notably by Courtenay Young and more recently by the Scientific Committee. This issue of the IBPJ is a contribution to that substantial body of literature.

And, of course, in keeping with our tradition of including art in every issue, we have commissioned a poem by Marcel Duclos on the subject of research. Marcel writes:

I send you this enigmatic poem as a reflection on the paucity and richness of the oft quoted and lauded statistical measures that both succeed and fail at defining the imponderables of a body-inclusive psychotherapy, sometimes as a science and often as an art. *To borrow Madhav Goyal's words, quoted by Mary Sykes Wylie in her article "The Mindfulness Explosion: The Perils of Mainstream Acceptance" in the 2015 January/February issue of the Psychotherapy Networker, body-inclusive psychotherapy is "inherently difficult to study and compare (research), (it's) like trying to pin down clouds in a gale." This does not mean that those among us who have limited skills and resources to carry out formal research ought not to forge ahead even if the study limps a bit, or if the mundane commercial world might distort the findings for its own purposes.*

Next fall, I will edit my last issue of this Journal after almost 15 years at its helm. The journal has grown and transformed from a members' benefit for the US Association for Body Psychotherapy into the online open access *International Body Psychotherapy Journal: The Art and Science of Somatic Praxis*, sponsored jointly by the US Association for Body Psychotherapy and the European Association for Body Psychotherapy. It is beginning to be listed in important data bases and with the help of Noya Abramovich, is beginning to have a social media presence as well.

Jill van der Aa and I have been working on this transition for a couple of years so it has been and will continue to be a gradual process.

After considerable thought and consultation, a new team has been chosen. The three-person editorial collaborative will be headed by Asaf Rolef Ben Shahaar, PhD, as Editor in Chief. He will be collaborating with two co-editors, Nancy Eichhorn, PhD, and Debbie

Cotton, NDd. They will continue to be assisted by members of the editorial committee, who have been unfailingly supportive of me during my tenure.

I am very excited anticipating both change and continuity with what we have gained so far. I am sure the new team will have fresh ideas and strategies, (which is why we have chosen them!) and I look forward to taking a back seat and watching them navigate.

New York City
February, 2015

* Jennifer Frank Tantia, PhD, BC-DMT is a somatic psychologist and dance/movement therapist in the US. She is a research advisor to dance/movement therapy students at Pratt Institute and sits on several doctoral dissertation committees in somatic research throughout the country. Dr. Tantia teaches developmental and somatic psychology and has introduced dance/movement therapy to Adelphi University. Former board member of the USABP, and former Program Director of the NY state chapter of the ADTA, Dr. Tantia currently serves on the research sub-committee of the ADTA. She has presented her own research internationally and has several publications in both dance/movement therapy and somatic psychology. Dr. Tantia works full-time in private practice in Manhattan.

SO MEASURE IT

Marcel Duclos

of all the means available
 to us who want to know
 some find it quite reasonable
 when our discoveries low
 on the scale of measured markets
 weigh high but seen as trinkets
 valued as vain commodity
 fast snatched with impunity
 sold to the masses wide and far
 bolstered by line and colored bar
 no thought of "becoming better
 at being worse" no sooner
 than that instant we first omit
 the reason we still commit
 to daring deep discovery
 moments of intimacy
 beyond the numbers on a chart
 stats still honored as an art

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Marcel Duclos studied philosophy, theology and psychology in preparation for his vocation as a psychotherapist. He is mesmerized by the seriousness of play evidence in body and mind.

Editorial

Jennifer Frank Tantia, PhD, BC-DMT

It is a great honor that Jacqueline Carleton has invited me to be the first guest editor for the International Body Psychotherapy Journal. I am indebted to her for the opportunity to bring you an entire issue dedicated to research in body psychotherapy- something that is very important to me. I also thank Alice Ladas who was the first voice in Body Psychotherapy to foster the importance and necessity of research in our field, and by keeping her verve and audacity in my mind, I humbly carry the torch this Spring.

Research is what turns a common interest group into a professional field. It shows that a theory or practice is strong enough and interesting enough to explore its depths by questioning it and testing it. The results of such questioning produce greater insights and knowledge that further the field's development. Research helps a common practice grow from creeping and crawling stages to toddling, walking and eventually up and running!

Although we body psychotherapists have had the pleasure of seeing with our own eyes how our practice works, without research literature to back up our actions, it is only a belief system. To the contrary of what has been called a "necessary evil" in body psychotherapy, research augments our convictions and helps us find a common language to describe our work to colleagues from other fields. It also deepens and expands the breadth and depth of our epistemological knowledge while providing a basis for ethical practice with our patients.

The current issue of the IBPJ is the first in this journal to celebrate research since the fall issue in 2005, under the former incarnation of the IBPJ: The USA Body Psychotherapy Journal. Our Spring issue is a manifestation of a professional goal for me: to include researchers from outside of the field of body psychotherapy and join them with our theory and practice. In the lineage of the late Jerome Liss and professor Steven Porges, who have both recognized and contributed to the efficacy of body psychotherapy, two new researchers from the UK have contributed their insights to the foundational aspects of our work such as Body Boundary from a Linguistics perspective and Interoception from the field of Health Sciences.

The first article, *Reading and Evaluating Quantitative Research in Body Psychotherapy* by Robyn Cruz (US) and Sabine Koch (Germany) provides a key for healing the rift between clinicians and researchers by unpacking some of the enigmatic language and formulas that appear in research literature. Their concise overview offers a way to read quantitative research that encourages interest and intelligence in reading, while providing definitions for some of the language that might stall some clinicians from enjoying the fruits of the research harvest!

The second article by Denise Saint Arnault (US) and Sharon O'Halloran (Ireland): *Biodynamic Psychotherapy for Trauma Recovery: A Pilot Study* is a long awaited longitudinal study that explores Biodynamic Psychotherapy as it is applied to women who have suffered domestic violence in Ireland. The article's compassionate application to a world-wide pervasive problem is an invaluable asset to the field of body psychotherapy.

In the third article, *Correlations between Tests for Grounding, Breathing and Self-efficacy in Individuals With and Without Chronic Pain*, Bader-Johansson (Switzerland) and Amanda Lundvik Gyllensten (Sweden) seamlessly integrate science and practice of body psychotherapy by measuring the effects of grounding and centering on psychological well-being. Their description of posture, gait and emotional health bring new light to the effectiveness of some of the core foundations of body psychotherapy practice.

Laura Cariola (UK) examines in her study, *Semantic Expressions of the Body Boundary Personality in Person-Centered Psychotherapy*, a psychological insight into the ways in which body boundary is a structure formed from early interpersonal development. She discusses how body boundary can be detected and how it results from familial values. She then investigates how body boundary influences linguistic expression in psychotherapy, and affects the relationship with oneself as well as interpersonally. Cariola also makes a connection between the ways in which language regarding one's body boundary might correlate with Reich's body armor system.

In the next study, *Interoception: A Measure of Embodiment or Attention?* Natasha Buldeo (UK) clarifies the scientific process behind the sentient self, and describes how embodied cognition and the felt sense is based in homeostasis. Buldeo describes the effects of interoceptive awareness when clients are distracted, and offers a beginning explanation for how memory is held in the muscles and tissues of the body. Her findings contribute to the current knowledge of body psychotherapy practice by offering scientific value to the act of bringing a client's attention to their own somatic experience during sessions. She suggests that the more accurately clients can perceive bodily activity, the stronger the relationship between bodily changes and cognitive-affective process during sessions.

In the final article of this issue, *Grasping and Transforming the Embodied Experience of Oppression*, Rae Johnson (US) offers a model for transformative learning that translates to clinical practice. Derived from educational theory, Johnson's model highlights the strengths of embodied awareness as a sophisticated source for understanding how oppression is unconsciously transmitted to our clients. She offers an ethical contribution to body psychotherapy practice by arguing for educators and clinicians to increase attention to our own embodied awareness in regards to oppressive communication, so that we as clinicians may make better choices regarding how best to communicate our integrity and authenticity on a body level.

Nancy Eichhorn (US) has written a comprehensive review of the past EABP Science and Research Symposium at the 14th European Congress of Body Psychotherapy, which took place in Lisbon, Portugal on September 13, 2014. She includes studies, debates and future prospects for research in body psychotherapy that made for a lively gathering that is evidently growing in numbers and interest.

The last part of our issue includes a look at our future researchers in a special student research section that includes theses and dissertation abstracts from the US, and the winners of the EABP Student Research award. As our field continues to grow, it is important that we give our students the support and encouragement that they need to become not only future clinicians, but also our future educators and researchers. Hearty congratulation to all of them! I hope that our current memberships of the USABP and the EABP will continue to enjoy and support research efforts in the service of helping to expand the value and importance of our work world-wide.

Aurora

Aline LaPierre, PhD

ALINE LAPIERRE is a psychotherapist, author, and artist living in Los Angeles. As an artist, she was trained in France at L'École des Arts Décoratifs where her mentor was an alchemist who taught the metaphysical properties of flow, shape and color. Influenced by the imaginal work of Carl Jung, she attended Pacifica Graduate Institute and curious about the nature of the psyche, trained at The New Center for Psychoanalysis. She is the coauthor of *Healing Developmental Trauma*.

Aline uses art as an active meditation, one that calls on her to be fully engaged in the present moment. She writes about the *Aurora* series:

“At times, I like to step into what the Japanese call *no mind state*. Faced with a blank paper, the calligrapher’s brush stroke reflects the artist’s internal state at the moment it touches the paper’s surface—a practice to uncover the hidden essence within.

My doorway into the no mind state is my iPad touchscreen. On the touchscreen, my gesture is recorded as immediately as the calligrapher’s brush stroke on paper. But on the touchscreen, a stunning new dimension appears. In the fluid electronic medium, gestures become threads of light that spread and grow like dendrites in a nervous system, allowing the brain to observe its essential self in motion. I think of this process as a present-day version of Japanese calligraphy.”

Together with Victor Osaka, Aline maintains a fine art and stock photography website at www.TrueLightDigital.com. You are invited to follow their contemplative photography blog at www.TrueLightDigital.WordPress.com.

**Reading and Evaluating Quantitative Research in
Body Psychotherapy**
Robyn Flaum Cruz, PhD
Lesley University Ph.D. in Expressive Therapies Program
&
Sabine C. Koch, PhD
SRH University Heidelberg, Dance Movement Therapy Program

Received: 8 October, 2014, accepted 15 December, 2014

Abstract

Many arguments have been made in the literature for why research is considered important for health practitioners. One of the most important has to do with continuing growth of practitioners and guarding against falling into practices that are based only on personal opinion. While most body psychotherapists would endorse the idea that research can affect and inform practice, many would also admit that they do not regularly read quantitative or evidence-based research studies, the type of research that can be generalized to their own clients. Feeling comfortable with and using suitable criteria for reading quantitative research articles and reports is often experienced as difficult. It requires the use of concepts and information that may not be employed in everyday clinical practice settings. Reviewing that content and its associated skills can help to make it more available, so that one may adequately critique and get more out of one's professional reading and ultimately, provide better service to clients. To that end, in this paper three related areas central to understanding quantitative research are reviewed: (a) the logic of research design; (b) how internal and external validity are judged; and (c) the basics of statistical inference.

Keywords: body-oriented therapy, body psychotherapy, dance movement therapy, research methods for clinicians, quantitative research, research design.

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
 Volume 14, Number 1 spring 2015 pp 10-19. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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Introduction

In times of increasing pressure to live up to evidence-based medicine standards established by health institutions and research communities, body psychotherapists, like other therapists, feel the need to be included and contribute. The contribution to the scientific research literature most often envisioned is quantitative research studies of efficacy using randomized controlled trials. These studies are just one methodological possibility of going about answering important research questions, and they have limitations (Koch, Kunz, Lykou, & Cruz, 2014), but they are important for the survival of health professions (Meekums, 2014).

If body psychotherapists do not want to disappear from health care systems, just like other specializations they will need to be able to demonstrate in clinical studies with large numbers of homogenous patient groups that body psychotherapy approaches work.

Despite this need, practitioners may not be motivated or have access to the specialized skills and resources needed to contribute to the research base – which usually requires an academic, institutional “home” that can be used as a base for applying for grant funds – and even seasoned researchers can face prejudices in locating funding for body-oriented studies (Meekums, 2014). But conceptualizing body psychotherapy as part of a larger community of related professions and research can be useful in adding to the research basis of the field.

Dance/movement therapy (DMT) is in many ways related to body psychotherapies; in Europe it is partly regarded as one form of body psychotherapy, relying on the healing factors of the body-mind connection, and on the other hand it is a creative arts therapy, relying on the healing effects of aesthetics and creative expression. DMT has begun to contribute many evidence-based studies on its effects (e.g., Bradt, Goodill, & Dileo, 2011; Karkou & Meekums, 2014), and can be rightfully called one of the foremost contributors to evidence-based clinical literature on the effectiveness of body-mind interventions.

Body psychotherapy as a profession can draw from the research resources that are starting to accumulate in dance/movement therapy (Karkou & Warnecke, 2014), and movement behavior research that has been developing over the years (Lausberg, 2013). For example, a recent meta-analysis of effects of dance therapy and dance on psychological measures (Koch et al., 2014) documented effects on quality of life, depression, body image, and anxiety among other outcomes. In addition, there are Cochrane reviews on DMT in cancer care, schizophrenia, depression, and most recently dementia (Bradt, et al., 2011; Karkou & Meekums, 2014; Meekums, Karkou, & Nelson, 2012; Ren & Xia, 2013). To assist with developing theoretical arguments for body psychotherapy that can then be tested with research, ample findings document the relationship between movement behavior and cognitive processes, and movement behavior and emotional processes (Lausberg, 2013). A good example in the DMT literature of how research findings from other disciplines can be used to develop cogent theoretical arguments can be found in Koch and Fischman (2011). Thus, by accessing a host of resources, it may be possible to address basic research premises for body psychotherapy, paving the way for much-needed research.

Body psychotherapy practitioners can also draw on such research resources and use them to inform their clinical practice. In fact, while body-oriented therapists tend to focus on research to inform policy-makers and address inclusion in healthcare reforms (Cruz & Hervey, 2001), consuming research to increase knowledge and understanding about clinical practice is the cornerstone of professional development and the continuing education required of clinicians. It has been argued that clinical skills can inform and even overlap with research skills (Cruz & Berrol, 2012; Meekums, 2014) creating a natural relationship between the two. But there is a long history regarding the difficult relationship between clinicians of all sorts and research (Cruz & Berrol, 2012) that continues to be noted today (Karkou & Warnecke, 2014). “The marriage between research and clinical practice has not been an easy one. Research has been seen as an add-on, an external requirement, a practice imposed upon practitioners and, as a result, many cannot see its value for daily clinical practice” (Karkou & Warnecke, 2014, p. 119). The issue is really one of maintaining high quality in clinical practice and has been referred to as the research-to-practice gap, or the evidence-to-practice gap in other health disciplines such as nursing (Cruz & Berrol, 2012, p. 13). There

are practical arguments about why reading research assists therapists such as, “While each therapist conceivably builds a base of knowledge through practice, imagine how inefficient it would be for each therapist to work only from his or her own experiences. The therapist who works only from the knowledge base of personal experience becomes locked within the parameters of his or her somewhat limited world view,” (Cruz & Berrol, 2012, p. 14). There have been many perspectives presented over the years about why clinicians seem indifferent to research (Cruz & Berrol, 2012).

We argue that clinical practice is a complex endeavor that requires the therapist to hypothesize based on both knowledge and comparative data. Clients benefit when the therapist is broadly informed and engaged in reading research. In a complementary way, clinicians are best positioned from their daily work with a range of clients to pose questions and problems to researchers about how to improve care that are worthy of research. This situation was the basis for the development of the scientist-practitioner model, sometimes call the Boulder model, that was proposed for psychology in the 1940s (Baker & Benjamin, 2000).

Understanding that therapists do want to offer clients their best services and that research is an important part of maintaining professional skills, the purpose of this article is to review and explain how to read and evaluate quantitative research. Evaluating such research and its impact for treatment, requires some understanding of the hierarchy of research designs, criteria such as how to judge internal and external validity, and the basics of statistical inference.

It Starts with the Question

Research questions typically address who, what, where, why and how concerns, and of these, the first three are generally answered with quantitative methods and the last two with qualitative methods (Yin, 2013). Quantitative research uses a defined question or hypothesis that is tested using data collected from a sample that represents a larger population, for example, adults suffering from incapacitating anxiety. This type of research is useful because it can test theory to see if there is evidence to support or refute the theory and it can be generalized to and across populations. If the sample represents the population well and the research has been conducted validly, then we can safely and reasonably assume that the results might be achieved with other members of that population treated similarly. It is exactly this quality of being able to generalize research results to other people that helps clinicians deliver good service. Research using qualitative methods in which there is a guiding question rather than a hypothesis, and data collection and analysis are used in a formative way, is useful for building theory and generalizes only to theory rather than to people or other members of a population. Rather than sampling a population, in qualitative research key informants are specifically chosen creating the inability to generalize the results to a population. Useful theories are the cornerstone of research and consist of collections of ideas that predict and explain and have empirical support from quantitative research. Thus, both qualitative and quantitative methods are needed for research. But because quantitative methods are often considered more difficult to understand, this article deals exclusively with quantitative methods.

The goal of quantitative research is typically to generate probable answers to who, what, or where questions. The answers are probable because probabilistic mathematical models are used for evaluating the statistical results of the study, a topic that will be addressed in this paper. This fact also means that while one might greatly desire to ‘prove’ that body psychotherapy is effective, the best that can be done is to accumulate support for that premise! No single study establishes fact and scientific evidence has to be amassed over time.

Thinking about research questions that are common in clinical work, one might, for example, ask questions about treatment – does it work better than the absence of treatment? Is it better than the alternatives (relative efficacy), and how does it work (mediation)? Hollon (2006) presented these as the key questions quantitative researchers interested in clinical care ask.

Research Design, Internal and External Validity

Evaluating the ‘goodness’ of quantitative research studies requires understanding fundamentals of research design that is based on logic, understanding what internal and external validity are and how they are judged, and understanding statistical inference. The goal of good research design is to assist the researcher in arguing that the intervention caused whatever change was observed in participants. In the strictest sense, causation requires that three conditions be satisfied; that the treatment must precede the result, the treatment must be sufficient to cause the result, and the treatment must be necessary for the result to be observed (Cook & Campbell, 1979).

However, in the practical sense causation is commonly assisted by arguments using basic research design features such as, adding a control group which does not receive the treatment. A control group assists the researcher in arguing that the treatment group changed as a function of the treatment because the two groups, one that did receive the treatment and one that did not, can be directly compared. Randomly assigning participants to the control or the treatment group further helps the researcher to argue that the groups were not different at the beginning of the research, although it is not a guarantee. Addressing features of the research design that enhance internal validity, or controlling alternative explanations for the change observed in the treatment group, is of key importance in designing research that helps the researcher to argue causation.

Internal validity is the amount of confidence with which one can attribute change observed in the treatment group to the treatment that was delivered. It is created by controlling elements of the study design that could be used to argue for rival explanations of the results, when what is desired is to attribute the therapeutic change to the treatment (Berrol, 2012). Internal validity was nicely and concisely described by Hollon (2006) and consists of defined potential “threats” such as maturation – for example, did a group of children change due to the treatment, or did they simply mature out of their difficulties? Other threats to internal validity consist of history (other events could have occurred outside of the research that impacted one group and not the other); testing (practice and other effects of the testing might change how people responded); mortality (people may not complete the study for different reasons including that they reacted negatively to the treatment); instrumentation (measurements may not have been taken consistently or validly); spontaneous remission (people who seek treatment at their worst will get better as a function of time); and statistical regression (people selected for extreme scores will do worse or better at the next testing). See Cruz and Feder (2013) for an interesting historical discussion of statistical regression, and note that the listing here of threats to internal validity is not exhaustive. Instead, it is intended to be just enough to demonstrate the point that logically accounting for the absence of these threats in the research design aids the researcher in his or her overall aim to argue that the treatment, not other factors, was responsible for the change observed in the treatment group. The researcher must try to control the design so that there are no other possible explanations for the results – something that is easier described than done in reality in social sciences research.

External validity is the amount of confidence with which the results of a study can be generalized “to and across alternate measures of the cause and effect and across different types of persons, settings, and times” (Cook & Campbell, 1979, p. 37). It consists of the elements of a study that support generalizing results to populations and even across populations. External validity is important when judging the usefulness of research. For good external validity, the researcher needs to have very thoroughly defined the important constructs used in the research. In research, constructs are abstractions that represent people, ideas, or events, et cetera. Self-esteem is a construct as are gender and intelligence, because they are abstractions and not directly observable (as opposed to, for example, height or sex). For example, if body psychotherapy is the treatment – it becomes a construct and the researcher needs to define exactly what constitutes body psychotherapy in his or her study. But additionally, for a study to have good external validity, it is important that the sample is well-described so that it can be judged whether the sample can be considered representative of the population and whether generalization is supported.

Statistics

A final element that is required for evaluating quantitative research is statistics. The limitation of statistics needs to be stated clearly, and that is that statistics cannot fix threats to internal validity or fix a poor research design. Statistics also cannot address poorly defined constructs or errors in sampling the population, and they cannot establish causation. However, what statistics can do is very useful. Once data have been collected, statistics can summarize and be used to test if what has been found is different than what would be expected just due to chance. *Descriptive statistics* help examine the sample, for example, who the participants are in terms of gender, age, ethnicity and other characteristics or constructs of interest – even how they performed on tests that were central to the research. Common types of descriptive statistics are the mean, or arithmetic average, the median, mode, standard deviation and proportions. Using these statistics and graphs such as histograms helps one ‘see’ and understand the data (Cruz & Feder, 2013). For example, how clustered or spread are the data? Did everyone score close to the group average, or were there extreme scores that affect the average and cause it to fail to be a useful indicator for the data? Descriptive statistics and graphs assist in making this and other types of determinations about the data.

Inferential statistics are simply statistical tests used to compare scores of 1 or more groups. Statistical tests indicate if differences between or among groups are due to chance or greater than what would be expected due to chance. Some common statistical tests that are seen in the body psychotherapy literature are the t test (which is a set of calculations specifically designed to be used for 1 or 2 groups), analysis of variance or ANOVA (a set of calculations specifically designed to be used for 2 or more groups with the flexibility to accommodate more than one grouping distinction – for example groups defined by sex and diagnosis, and measurements repeated over time), Chi-squared, Mann-Whitney U, and Wilcoxon. The statistical test a researcher uses, so for example the t test, ANOVA, Chi-squared, et cetera, depends on the research design – the number of groups, type of data (scores vs. yes-no data, or none, some, a lot data – for example), and even the sample size or number of participants is a consideration in choosing the appropriate statistical test.

An Example

A brief example may be useful. If a researcher wished to study whether body psychotherapy (BP) reduced trauma symptoms of people diagnosed with post-traumatic stress disorder (PTSD) more than participation in cognitive behavioral therapy (CBT), he or she might select individuals with PTSD from the population and randomly assign them to either BP

or CBT treatment. This is an interesting choice because CBT represents an active control condition, as it is also an intervention favored for treating PTSD, and active control conditions create a stronger research design than control conditions where no alternative treatment is offered. Before and after the interventions, participants might be measured on a symptom inventory, and the difference between their scores before and after could be simply calculated by subtracting the score at post-test from the score at pretest. A smaller score at post-test creates a larger difference score (See Table 1) and, in this case, would indicate improvement or fewer symptoms at post-test than were reported at pretest.

Table 1 below shows the descriptive statistics for this pretend research. Inspection of the table shows that the number of participants per group (N), means or arithmetic averages (M) and standard deviations (SD), t test result ($t(df)$) and the probability of the t test result (p), have been reported. Note that means and standard deviations are reported for the pretest, the post-test, and the difference between the pretest and post-test scores. It is clearly seen that the participants in the BP treatment intervention, on the average, experienced a greater reduction in symptoms showing an average difference of 13.85 points on the symptom inventory than those who received CBT who showed only a difference or change of 3.64 points. In fact, the disparity between the means of these two groups is 10.21 (13.85 minus 3.64). But is that disparity between the groups meaningful or could it just be due to chance? The only way to answer that question is to use inferential statistics and submit the data to a statistical test.

Table 1:
Descriptive and Inferential Statistics for Symptom Inventory Scores – BP and CBT Participants

Group	N	Pretest (M, SD)	Post-test (M, SD)	Difference (M, SD)	t(df)	p
BP	13	31.08, 10.1	17.23, 6.7	13.85, 7.2	4.82 (25)	.001
CBT	14	30.57, 9.8	26.93, 9.9	3.64, 3.0		

In this example, the independent groups t test is an appropriate statistical test because as stated earlier, the t test is a set of calculations specifically designed to be used for two groups of participants, and the data on the symptom inventory meet the qualification of being interval level data (score points on the symptom inventory approximate equal intervals). So how is the t test result reported in Table 1 interpreted? The key feature of the result of the test is actually the probability value or p value (in Table 1, $p = .001$). In social sciences research, the probability values of results are typically evaluated by comparing them to .05 or .01. A small probability value (for example $<.05$ or $<.01$) associated with a statistical test result is interpreted as a statistically significant result. A statistically significant result indicates that the difference found between groups is not a chance difference. In this example in Table 1, the probability of the test result ($p = .001$) is smaller or less than .05 so this result is interpreted as statistically significant. Again, this means that the people who received BP improved more than the people who received CBT. The improvement in symptoms between the two groups (13.85 versus 3.64) is statistically greater than what would be expected due to chance. A statistically significant result such as this is interpreted as offering support for the research hypothesis that individuals with PTSD treated with

BP show more improvement (a greater reduction in trauma symptoms) than those treated with CBT.

Note that while the means and standard deviations – the averages and the spread around the averages – are displayed for the symptom inventory at pretest and at post-test, it is the scores created by subtracting the post-test scores from the pretest scores for each participant that are used in the statistical test (t test) between the two groups. It would be incorrect to separately test the scores at pretest and at post-test. That would indicate whether the groups were different from each other at pretest and whether they were different from each other at post-test. But it would not indicate how much each person in both groups changed in symptoms. In fact, the approach of testing the groups against each other at pretest and again at post-test has a name, the “wrong statistic in common use” (Campbell & Stanley, 1963 p. 23), because it fails to directly compare the quantity of interest which is the change from pretest to post-test for the participants that is expected to be due to the intervention.

When one reads quantitative research reports, it is important to keep in mind that statistical results such as the one demonstrated in the example are just one piece of evidence related to the study. In the example, it is important that participants were randomly assigned to the treatment groups as it addresses a potential bias, but one would also need to pay attention to other factors. For example, how well the central construct, PTSD, was measured and if its severity might have an impact on the research. More severe PTSD symptoms are more difficult to treat than less severe symptoms, so the researcher would need to make sure that the severity was the same in both groups. In addition, the measurement tool for noting symptoms and symptom change, would need to be one that was appropriate for and sensitive to PTSD symptoms. Also, the exact nature of the BP and the CBT treatments and who delivered the treatments should be carefully described and explained. The better the constructs and the participants are described, the better able the reader is to make decisions about the external validity of the study and whether generalizing is reasonable. Potential threats to internal validity and how they were controlled by the researcher need to be addressed. And, in the final analysis, the reader must also consider the sample sizes, which while sufficient for the statistical analysis, are intended in quantitative research to stand in for the population targeted by the research. Usually, there is more comfort in generalizing when the number of subjects representing the population is relatively large with respect to the size of the population, but in lots of research relevant for BP, sample sizes are somewhat small, like in the example used above. One of the very helpful aspects of meta-analysis, which will be described briefly below, is that it allows samples to be accumulated over many research studies, which can be very helpful in amassing evidence of treatment efficacy and effectiveness for a target population.

Beyond Statistical Tests

All research offers evidence, but in quantitative research the evidence can sometimes be confusing. In fact, research results can be equivocal. One study can support the hypothesis, but another can refute *the same hypothesis* due to results of statistical tests. The reason is that statistical tests combine sample size and effect size to create statistical significance. What this means is that the larger the sample, the more likely a researcher is to get statistical significance, and the converse is also true; the larger the

size of the difference between groups or the experimental effect, the fewer participants are needed for the researcher to get statistical significance. An antidote to this problem is meta-analysis, which involves replacing statistical testing with calculating effect size and then averaging effect sizes across studies to get a sense of the experimental effect across many research studies. Koch, Kunz, Lykou, and Cruz, (2014) used meta-analysis to systematically summarize the research on dance/movement therapy and dance for specific health and psychological outcomes. Because a single study is insufficient to establish the usefulness of any technique for any purpose, meta-analysis offers a good solution to the issue of equivocal results and usefully summarizes the research in specific areas (Cruz & Sabers, 1998). Especially in areas that need more research, meta-analysis can be more practical than Cochrane reviews where stricter criteria can greatly limit the number of studies allowed in the review so that average effect sizes cannot be calculated. Cochrane reviews are highly systematized reviews of research on specific topics that are touted as creating the highest standard for evidence-based care (<http://www.cochrane.org/cochrane-reviews>). However, when there are limited numbers of studies in a specific area, applying the stringent criteria needed for this type of review usually reduces the available information so much that the only result is that there is not enough information for an informed result.

Summary

This brief review and overview of quantitative methods explains how multiple, theoretical arguments are used to establish the value of quantitative research. Just like other skills, keeping one’s quantitative research skills fresh takes attention. Practice improves one’s comprehension and understanding. Reading and working to understand research results gets easier with experience. Reading research with colleagues allows individuals to pool their ‘knowledge’ resources and have fun at the same time (Cruz & Berrol, 2012). There are many wonderful resources on the Internet for learning more about quantitative research and even a quick search for an unfamiliar term while reading produces information that can greatly enhance one’s understanding. Appendix A lists just a few online resources for getting started. We have also included a list of questions that can be used as one is reviewing research articles (see Appendix B). We hope that practicing reading quantitative research with this list and a group of like-minded colleagues becomes a useful exercise that brings benefits to both therapists and clients of BP therapists. It might even lead to written summaries on evidence for particular patient groups that might be quite useful for the process of professionally establishing guidelines in the health care system. In the UK the National Institute for Health and Care Excellence (NICE) guidelines, for example, include arts therapies for schizophrenia and psychosis in adults, children, and young people as a result of summaries of research. In Germany, summaries of research for particular patient groups can be submitted to the medical *Behandlungsleitlinien* (diagnosis related groups), and so far has led to the inclusion of dance/movement therapy as a recommended therapy for traumatized children, for breast cancer rehabilitation, and for Parkinson’s disease. This in turn helps with employment, reimbursement, and recognition of the field within the health sciences. Regardless of whether written summaries help establish guidelines for an individual, a small practice, or contribute to a national database, this worthwhile activity of reviewing, discussing, and summarizing research can have cumulative effects that support the professionalization of body-oriented therapies.

Appendix A**Helpful Websites**

- Statsoft, Inc. (2008). *Electronic textbook*. Retrieved from <http://www.statsoft.com/textbook/stathome.html>
- Niles, R. (2008). *Statistics every writer should know*. Retrieved from <http://www.robertniles.com/stats/>
- Oskar Blakstad (Feb 13, 2008). Statistics Tutorial. Retrieved Dec 29, 2014 from Explorable.com: <https://explorable.com/statistics-tutorial>

Appendix B**Questions to Guide Research Reading**

1. What was the research question? (It should be clear.)
2. What was the research design? (This should be specified.)
3. Are there obvious threats to internal validity? (Hopefully no, but if so the author should discuss.)
4. How well were the major constructs defined? (There should be specificity to enhance external validity.)
5. How was the population defined? (This should be clear to enhance external validity.)
6. How were participants recruited? (They should be obvious members of the population.)
7. Was random assignment to group used? (When yes, it makes the design stronger.)
8. Was there diversity in the sample? (When yes, it makes the research more useful and generalizable; strengthens external validity.)
9. How well did the measures fit the constructs? (Measurement needs to fit the purpose.)
10. Are all important descriptive statistics reported? (M, SD, and N need to be given. This makes the research suitable for future analysis.)
11. What were the statistical results? (A statistically significant difference can support the research hypothesis – but authors should also report effect size.)
12. Were groups directly compared in a single statistical test? (A pre-post difference within each group is incorrect.)

BIOGRAPHIES

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<http://journal.frontiersin.org/Journal/10.3389/fpsyg.2014.00537/abstract>
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Biodynamic Psychotherapy for Trauma Recovery: A Pilot Study

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Received 15 October, Accepted 21 December 2014

Abstract

Body-oriented approaches for treating trauma survivors focus on automatic processing, and aim to address the physiological effects of trauma directly within the body itself, without primary reliance on conscious recall. This longitudinal pilot study used standardized pre and post-intervention measures to evaluate the feasibility, acceptability and impact of Biodynamic Interventions delivered six months apart on mind-body healing for eight women receiving domestic violence support services in Western Ireland. Findings revealed that women were willing to engage in treatment, and had sustained improvements in distress, quality of life, and use of social support over one year. More research on integrative approaches to trauma recovery is needed.

Keywords: Biodynamic psychotherapy, trauma recovery, domestic violence, women's mental health, integrative trauma therapy

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
Volume 14, Number 1 spring 2015 pp 20-34. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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Acknowledgements: This research was funded by Safe Ireland and supported by the University Of Michigan School Of Nursing.

Violence against women is a serious and pervasive social problem, often resulting in severe mental health consequences for its victims. The experiences of domestic violence (DV) have severe deleterious effects on women's mental health (De Jong, 2002; Kilpatrick, 2003; Tjaden and Thoennes, 1998). A large percentage of traumatized individuals meet criteria for an array of mental and physical conditions, including mood and anxiety disorders, substance abuse and dependence disorders, eating disorders, somatoform disorders, and medically unexplained symptoms (Crowne et al., 2010; Pico-Alfonso et al., 2006). Most current research emphasizes that the goal of complex trauma therapy is to provide for the immediate needs of security, personal strength, and self-confidence (Courtois, 2004; Courtois & Ford, 2009; van der Kolk, McFarlane, and Weisaeth, 1996). In addition, from a feminist perspective, women need help feeling whole and well. Much recent research supports treatment that aims at support and empowerment (Hill and Ballou, 2005). This research examines a short-term, body-oriented intervention designed to help women in the recovery phase of DV.

Background and Significance

Mainstream psychological therapies for trauma rely on the patient's conscious thought processes in conjunction with remembering or therapeutic re-experiencing of the event to resolve the problematic emotions, behaviors, and physical symptoms of the patient (Courtois and Ford, 2009). While there is some evidence that working with conscious processes can promote improvement in some patients (Kubany, Hill and Owens, 2003), other research warns that when trauma narratives are retold, bodily processes related to the traumatic memory are also activated, leading to a re-experiencing of the bodily symptoms associated with the event (Ogden, Pain, and Fisher, 2006). This debilitating and repetitive cycle of mind-body triggering can thwart therapy and serve to actually keep the past trauma "alive" in the body (Ogden, Pain, and Fisher, 2006; Schore, 2002; van der Kolk, Pelcovitz, and Roth, 1996).

People who seek treatment for trauma-related problems often have had histories of multiple traumas; however, most PTSD treatment has been developed and tested with single trauma populations (Courtois, 2004; Courtois & Ford, 2009; van der Kolk, McFarlane, and Weisaeth, 1996). The research question that remains is whether people who have experienced complex trauma are able to utilize the treatment approaches developed for PTSD. These approaches may address only part of the multifaceted syndrome of complex trauma, which includes the interrelated emotional, physical, behavioral, and social difficulties, as well as dissociation (Kezelman and Stavropoulos, 2012).

Most traditional psychotherapies, including cognitive-behavioral therapy (CBT), depend on what researchers are now referring to as "top-down processing," in which clients use cognitive strategies to manage or inhibit problematic feelings, thoughts, and behaviors (Sarter, Givens and Bruno, 2001; Ogden, Pain and Fisher, 2006). CBT aims to help clients understand how the traumatic experiences have affected their beliefs, and how these beliefs may foster maladaptive ways of feeling and behaving (Kubany, Hill and Owens, 2003). Clients learn how to identify stimuli that trigger them, understand their responses, and possibly learn how to manage disturbing emotions and reactions (Courtois, 2004; Courtois & Ford, 2009; Ogden, Minton, and Pain, 2006; van der Kolk et al., 1996). Top-down approaches, however, may not resolve physiological hyper-arousal in the short-term, leaving clients reflexively triggered by stimuli that their neurobiological system perceives as dangerous, therefore continuing to respond to these stimuli in maladaptive ways (Ford, 2009; Putnam, 1997). This reflexive neurological responsiveness, which lies outside of consciousness, affects affect regulation (Wilson, 2008); may relate to dissociation (DePrince and Freyd, 2007; Price, 2007; Zelikovsky and Lynn, 2002); and may cause physical pain and hyper-vigilance (Nijenhuis, van der Hart, and Steele, 2010; Ogden et al., 2006). Research is beginning to explore how treatment for complex trauma can be directed towards integration of the mind and the body suggesting we need to "pay...attention to the experience and interpretation of physical sensations and preprogrammed physical action patterns" (van der Kolk, 2006, p. xxii forward to Ogden, et al 2006)(Kezelman and Stavropoulos, 2012).

Body-oriented approaches to treating trauma survivors (referred to as "bottom-up" treatments) focus on the physiological, automatic processing, and aim to address the physiological effects of trauma directly within the body itself, without the primary reliance on conscious recall of painful memories. By mitigating the physiological arousal processes, these therapies purport to foster the body's natural healing processes, which in turn affect

cognition, emotion and behavior (Solomon and Heide, 2005). Body psychotherapeutic approaches focus on the physiological arousal processes described above and use interventions aimed at interrupting reflexive responses to trigger stimuli. Bottom-up approaches may also foster the body's natural healing processes, which in turn affect cognition, emotion, and behavior (Allmer, Ventegodt, Kandel, and Merrick, 2009; Boyesen, 1980; Koemeda-Lutz et al., 2004; Koemeda-Lutz, Kaschke, Revenstorf, Scherrmann, Weiss, and Soeder, 2006; Ogden et al., 2006; Price, 2005; Solomon, Solomon, and Heide, 2009).

Recent research is beginning to measure the efficacy of a wide variety of body psychotherapy approaches. This review will focus only on peer-reviewed evidence about the usefulness of selected body psychotherapy techniques. However, we acknowledge that this is a rapidly expanding field and welcome much more research in this area. Probably the most widely known of these methods is *Eye Movement Desensitization and Reprocessing* (EMDR). EMDR is a combination of body-focused (bottom-up processing) and cognitive-behavioral (top-down processing) treatment primarily for PTSD (Kutz, Resnik, and Dekel, 2008; Servan-Schreiber, 2000; Shapiro, 2009). EMDR focuses on reprocessing the stored memories of the traumatic experience, enabling the client to use cognitive and affective mechanisms to reach an adaptive resolution. Another promising line of research involves *Somatic Experiencing*, which is a treatment technique developed to respond to the biological, reflexive, and defensive bodily responses to trauma, and to residual trauma-related fearfulness. The treatment aims to help the client complete the response that was interrupted at the time of the trauma, and teach self-regulation skills (Leitch, Vanslyke, and Allen, 2009; Levine, 1996). In a retrospective study of bioenergetic therapies, Ventling (2002) examined the recovery of 149 former patients who had terminated their therapies after a minimum of 20 sessions 6 months to six years earlier. She found significant positive changes in interpersonal and psychosomatic problems and the effect of body work on physical consciousness, cognitive insights and changes in quality of life, with 107 (75%) patients indicating a stable or even improved condition (Ventling, 2002). In a multinational study, Koemeda-Lutz et al. (2003) compared routine applications of body psychotherapy in outpatient settings to other outpatient psychotherapeutic patients after 6 months of therapy, and found that the body psychotherapy patients (N=78) had significantly improved with small to moderate intraclass effect sizes. After two years of treatment, large effect sizes were attained in all scales (N=21) (Koemeda-Lutz et al., 2003). Price (2007) found that dissociation can be significantly reduced with the addition of body-oriented therapy as an adjunct to traditional psychotherapy for women who were recovering from sexual abuse. In a sample of 24 women who received eight, one-hour body psychotherapy sessions, dissociation was reduced (Price, 2005; Price, 2007). This present pilot study, we hope to contribute to this growing body of research by examining the acceptability, feasibility, and initial estimates of the effect of Biodynamic Psychotherapy to promote trauma recovery for a sample of women receiving DV services in the West of Ireland.

Theoretical Rationale for Biodynamic Intervention for Trauma

Biodynamic Psychology and Psychotherapy is a very specific form of body psychotherapy that was developed by a Norwegian physiotherapist and psychologist Gerda Boyesen in the 1940s (Southwell, 1988). Several major institutes train students in Biodynamic psychotherapy in Europe, including centers in the Netherlands, Germany, Italy, France, England, and

Ireland. Biodynamic psychotherapy is a treatment approach that can help people recovering from trauma with the bodily and psychological processes of affective and sensory stimulation, promoting well-balanced and well-regulated physiological and emotional functioning (Boyesen, 1980; Saint Arnault, Molloy, and O'Halloran, 2012; Saint Arnault, Molloy, O'Halloran, and Bell, 2013; Southwell, 1988). Biodynamic psychology theorizes that painful emotions related to traumatic experiences become encapsulated in muscles. Emotional and physical trauma and shock are stored in rigid and chronically contracted muscles, referred to as *armouring*. Armouring keeps the psychic and physical energy static, and the body is held in a chronic, permanent startle reflex. This muscular contraction prevents tensions and emotions from being released. Armouring is understood to occur in layers, from superficial to deep. In addition to storing tension and emotional pain, armouring traps bodily fluids and restricts blood circulation that would remove biochemical deposits at the time of the trauma or shock. This is referred to as *tissue armour*, or a concentration of metabolic residues in the body, such as adrenaline and lactic acid. The storage of tension and fluid by the body may repeatedly engage the sympathetic nervous system, keeping the person in a chronic state of hypervigilance or shock. This chronic state of sympathetic nervous system excitement can exhaust adrenal glands and other feedback mechanisms that would normally engage to restore a state of neurological quiet and equilibrium (Boyesen, 1980; Saint Arnault, Molloy, O'Halloran, and Bell, 2013; Saint Arnault, Molloy, and O'Halloran, 2012; Southwell, 1988).

Boyesen hypothesized that emotions are spontaneous bodily processes that may be inhibited by muscular contraction (Boyesen, 1980). Conscious and unconscious processes trigger these biological and emotional imbalances, and these, in turn, prevent the flow of physical and emotional feelings in order to limit emotional pain. This biodynamic repression prevents spontaneity and disturbs normal physical, mental and spiritual homeostasis. The Biodynamic psychotherapist uses specialized touch techniques to locate areas of tension in the muscles, and the aim is to release tissue armouring and trapped energy to promote energy discharge and resolution (Saint Arnault et al., 2013; Saint Arnault, Molloy, and O'Halloran, 2012; Saint Arnault et al., 2012). Biodynamic therapists use stethoscopes to listen to peristaltic sounds (rumblings in the gut) that allow them to track the body's parasympathetic activity (which signifies relaxation) (Boyesen, 1980; Saint Arnault, Molloy, O'Halloran, and Bell, 2013; Saint Arnault, Molloy, and O'Halloran, 2012; Southwell, 1988).

Biodynamic Psychology also uses group methods to facilitate healing. One important technique is a Biodynamic version of *psychodrama*, including techniques such as role-playing, role reversal, mirroring and doubling (Saint Arnault, Molloy, O'Halloran, and Bell, 2013). Biodynamic psychology theorizes that by completing the reaction or response that was already activated *but not expressed* in the original situation (referred to as *therapeutic ab-reaction*), the autonomy, dignity, strength and spontaneity of the 'primary personality' is restored (Klopstech, 2005; Saint Arnault, Molloy, and O'Halloran, 2012; Saint Arnault et al., 2013).

Methods

Design

This paper reports a longitudinal pilot study that used Biodynamic methods to foster healing for eight women who were receiving DV support services in Western Ireland. The aim of this research was to examine the feasibility and acceptability of three 2 ½ day Biodynamic Interventions, complemented by a three-hour individual bodywork session.

The data reported here are part of a larger study that uses mixed biological, qualitative, quantitative, clinical ethnographic and experience sampling methods to examine the healing experience for eight women receiving DV services in Western Ireland.

An Institutional Review board approved all procedures. The lead author, a master's prepared Psychiatric Mental health nurse, attended all group sessions, and at least two members of the research team attended all of the individual sessions. The Gerda Boyesen International Institute (GBII) provided all of the treatment. Mary Molloy, the principle of GBII, has been providing biodynamic education and treatment internationally for over 30 years, delivered all of the interventions. She was assisted by two senior therapists who hold director positions in GBII, and the director of the SAFE Ireland (herself a qualified Biodynamic therapist).

Sampling, Recruitment, and Retention

We recruited a convenience sample of women receiving DV services who were in the recovery phase of their survivorship, were at risk of somatic and psychological symptoms and disorders related to their trauma, and expressed a desire for healing from the effects of that trauma. We sampled women in Ireland because they were proximate to an established Biodynamic therapy clinic and training center (GBII). Inclusion criteria were women over 21 who were receiving services and had a case manager, spoke and read English, and who agreed to the treatment. We used the Kessler 6 (K6) to screen for distress. The K6 is a six-item distress inventory designed to screen for the likelihood of significant psychological symptomatology (Kessler, et al, 2002). Because we knew that the distress for women who have experienced DV is generally high, we set our exclusion criteria quite high, allowing women with K6 scores under 20 to enter (Kessler, Andrews, et al, 2002). However, women who were actively psychotic were excluded.

Women receiving DV services were notified of the opportunity to participate in the study by their case manager, or through seeing the poster at the DV shelter. Those expressing interest to their case manager, and who were deemed by their case manager as appropriate for this trial were given the contact information of the Project Coordinator at SAFE Ireland to arrange an intake screening. If the woman met criteria, potential participants were informed of the BP protocol, the research instruments, and the incentive payment. Women who agreed received the informed consent, the survey packet, directions to the pre-treatment qualitative interview, as well as directions and details about the workshop itself. Participants received written information and reminder phone calls before the scheduled interviews. In case of adverse events, women were instructed to call their case manager or the SAFE Ireland office. The SAFE Ireland director coordinated any followup needed. Case managers monitored women regularly and coordinated closely with the SAFE Ireland staff to create what we termed "wrap-around" services.

Instruments and Measures

Demographic data included age, education, and employment. The survey measures were assessed at baseline, six weeks pre and post each intervention. Psychological distress data included depression, anxiety, and psychosocial symptoms. Physical distress measures included physical symptoms. Overall quality of life was measured with the Vitality, Social, Role-Emotional and Role functioning subscales of the SF-36 to gain a full understanding of women's wellbeing. Social support and Social conflict was measured with Social Conflict Scale (SCS), a subscale of the Quality of Relationship Inventory (Pierce, Sarason and Sarason, 1991).

All CESD, anxiety and physical and emotional symptoms were measured using the same Likert scale with "0" indicating little or no times per week to "3" indicating most or all of the time. *Depression* was measured with the Center for Epidemiologic Studies-Depression scale (CES-D), developed at a division of the National Institutes of Mental Health, in 1971 (Radloff, 1977). The CES-D is a self-report scale that is an amalgamation of previously devised depressive inventories. Cronbach's alpha reliability for the CESD with this sample ranged from .95-.96. *Anxiety* was assessed using the Zung Anxiety Self Report (Zung, 1971), which is a 20-item instrument. Cronbach's alpha reliability for this sample was .84 (Zung, 1971). *Physical and emotional symptoms* were measured with the 45-item Composite Symptom Checklist (CSC), which included 22 physical items and 23 emotional items (Saint Arnault & Fetters, 2011). Quality of Life was examined with the Medical Outcomes Study Short Form-36 Health Survey (SF-36). The SF-36 was developed in the USA and has been used in a number of countries (Ware et al., 1998; Ware, Kosinski, & Keller, 1994; Ware & Sherbourne, 1992). We selected the sub-scales representing Bodily Pain, Vitality, Social Functioning and Role Functioning. *Social Support Satisfaction* was measured with the Social Support Questionnaire for Transactions (SSQT)(Suurmeijer et al., 1995) that measures satisfaction with social support in five domains: Emotional Support, Problem Oriented Emotional Support, Social Companionship, Instrumental Support and Problem Oriented Instrumental Support. Cronbach's alpha reliability ranged from .92-.95 (Suurmeijer et al., 1995). *Social conflict* was measured with Social Conflict Scale (SCS), a subscale of the Quality of Relationship Inventory (Pierce, Sarason and Sarason, 1991).

Intervention

Participants in the BP intervention were treated over a 12-month period between May 2011 and May 2012. Our intervention consisted of both a group intervention and an individual bodywork session six months apart. In the group portion of the intervention, we focused on a biodynamic version of psychodrama, for which examples are published elsewhere (Saint Arnault, Molloy, O'Halloran, and Bell, 2013). Within this group, other members of the group might become part of the psychodrama; however, most of the time the most of the therapeutic work was done with the therapist in a one-on-one and the participant, witnessed by the group. The other component of our intervention was a bodywork session aimed at releasing tissue armoring and trapped energy, and the specific technique depended on the location of the trapped energy, but included well-known Biodynamic massage techniques. During both the group and the individual sessions, the therapist worked with the body and the psychological content that comes to the surface to promote energy discharge and resolution (Saint Arnault et al., 2013; Saint Arnault, Molloy, and O'Halloran, 2012; Saint Arnault et al., 2012).

The philosophy that guided the interventions provided in this study have been reported elsewhere (Saint Arnault, Molloy, & O'Halloran, 2012). In summary, the therapeutic team employed a *biodynamic environment*, which was understood as a space that affirmed the integrity of each person, and supported honest self-expression without judgment. This was a conscious creation of a safe and structured environment that aimed to allow self-discovery, release of trapped energy, and promote the re-integration of the mind and body. In addition, the treatment team used a system of *holding*, which involved supporting the participant to take time, with focused support and encouragement, to express feelings or thoughts arising from the intervention. Holding attention allowed the participant to complete their thoughts, feelings, and the interrupted impulses without judgment or interruption. In the bodywork sessions, holding the muscle or part of the body that had been weakened aimed to allow the complete circulation of energy. An important focus of our Biodynamic psychotherapy intervention was *listening to the body*, whereby

the therapist assists the participant to gain awareness of habitual movements and discover their source through observation and mirroring, or encourages the participant to consciously alter or exaggerate these movements or bodily sensations to facilitate self-discovery and the discharge of trapped energy. Consistent with the Biodynamic psychotherapy goal of completing emotional cycles and facilitating vegetative discharge of trapped energy, the therapist assisted the participant in the discovery of the psychological and bodily places where energy had been stored, and held attention there while the participant completed the action, spoke the unspoken, or gave expression to the energy that needed to be discharged.

Analysis

We evaluated the impact of this treatment on the psychosocial health and wellbeing using baseline assessments and 6-week post-intervention standardized psychological, and quality of life measures for all workshops. According to recent research, paired t-test can be used with small sample sizes (De Winter, 2013). Therefore, we used t-test to compare pre and post-intervention scores for all time points (see Table 1). We also used means and standard deviations to calculate Cohen's d effect sizes. Cohen (1988) reports the following interpretation guideline for interpretation of effect sizes: 0.1 to 0.3 is a small effect; 0.3 to 0.5 is an intermediate effect and 0.5 and higher is a strong effect.

Findings

Sample Characteristics

Eight women volunteered for this study, attended all workshops and the individual sessions, and completed all instruments. The average age of the women was 44 years. The range of time the women were with their abuser was 5-20 years. Four of the women had experienced and/or witnessed abuse as children, and several had experienced sexual abuse or rape either as children or in the abusive relationship. All of the women had been out of the violence for over four years, and two of the women were in new relationships. All of the women were in DV support services at the time of the study, and all but one had been in these services for years. Most of the women had vocational training and one had a graduate degree. All of the women were residing in rural areas of Ireland.

One of the findings from this study is a detailed picture of how trauma devastates the quality of life for women, even after years away from the abuse. The mean Kessler score of the women was 13.4 (SD=4.9), with a range from seven to 20 at baseline. The CESD scores ranged from 18-56 and the mean was 36.2 (SD=13.8) (cut-off, for indicating clinically significant depression, is 16) (Radloff, 1977). While the mean is still in the moderate range, Zung Anxiety Scale scores ranged from 18-46 with a mean of 31.3 (SD=10.7) (cut-off for moderate to severe anxiety is 45-59) (Zung, 1971). Physical and emotional symptoms were also high. On the CSC, women's sum of symptom scores ranged from 19-54 with a mean of 34.4 (SD=10.9). On the emotional symptom checklist (23 physical symptoms including depression, sadness, anxiety, fear, anger, loneliness, and out of body feelings), women's sum of symptom scores ranged from 27-68 with a mean of 47.2 (SD=15.5). There are no cutoffs for these scales, however Escobar reports that even three somatic symptoms predicts psychopathology (Escobar, Cook, Chen, Bara, Alegria, et al, 2010). Four of the eight women were on antidepressant medication, sleep aids, or both. The Kessler, CESD, Zung Anxiety scale, or symptom scores did not correlate with age, employment status, or education.

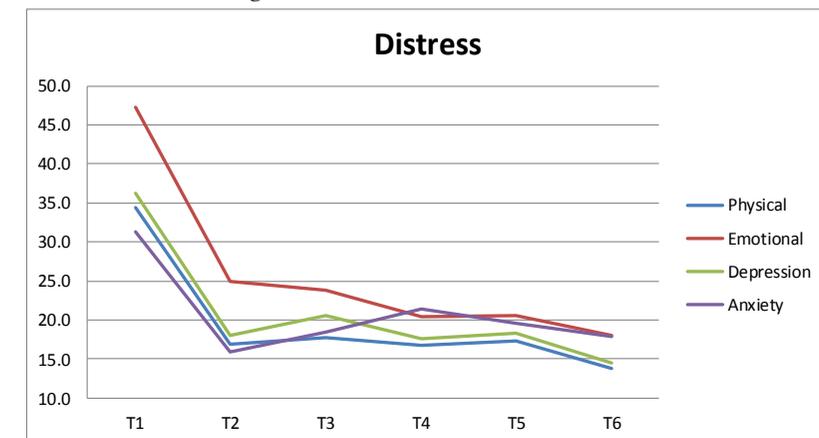
Table 1: Health indicators changes over time (* $p < .05$)

Health Measure	T1	T2	d	T3	T4	d	T5	T6	d
	M (SD)	M (SD) sig.		M (SD) sig.	M (SD) sig.		M (SD) sig.	M (SD) sig.	
Emotional	47.3 (15.6)	24.9 (17.2)*	-1.4	23.9 (18.8)*	20.4 (21.1)*	-0.12	20.5 (21.0)*	18.0 (19.2)*	-0.12
Physical	34.4 (11.0)	16.9 (9.8)*	-1.7	17.8 (9.9)*	16.8 (10.1)*	-0.1	17.3 (9.7)*	13.8 (9.9)*	-0.36
Depression	36.3 (13.8)	18.0 (14.5)*	-1.3	20.5 (13.3)*	17.6 (15.2)*	-0.2	18.3 (14.5)*	14.5 (14.6)*	-0.3
Anxiety	31.3 (10.8)	15.9 (8.6)*	-1.6	18.4 (10.6)*	21.4 (7.8)*	0.3	19.6 (9.9)*	17.9 (11.7)*	-0.2
Support	47.8 (11.3)	53.4 (14.4)	0.4	57.0 (13.0)*	59.6 (14.9)*	0.2	59.9 (15.2)*	61.3 (16.2)*	0.1
Conflict	17.8 (3.4)	13.1 (6.0)	-1.0	13.4 (3.2)*	14.6 (2.9)	0.4	14.8 (2.8)	13.1 (2.9)*	-0.6
Vitality	25.0 (18.9)	46.9 (16.7)*	1.2	42.5 (19.6)*	35.0 (26.3)	-0.3	35.0 (26.3)	43.8 (17.7)*	0.4
Bodily Pain	42.8 (29.7)	55.9 (31.0)	0.4	59.1 (22.6)*	55.9 (22.5)	-0.1	57.5 (24.6)	59.1 (58.7)	0.04
Social	48.4 (30.9)	62.5 (30.6)	0.5	59.4 (18.6)	53.1 (19.8)	-0.3	56.3 (24.1)	56.3 (20.0)	--
Role	25.0 (38.8)	45.9 (39.6)	0.6	46.1 (32.2)	45.8 (35.4)	--	50.0 (39.8)	45.8 (46.9)	-0.1

Distress

The distress indicators in this study were emotional symptoms, physical symptoms, depression scores and anxiety scores (see Chart 1). The women in the cohort study had statistically significant and sustained improvements in all of their distress indicators. There was a large effect on emotional symptoms after the first workshop (baseline $M=47.3$, $SD=15.6$) compared with six-week findings, $M=24.9$, $SD=17.2$ ($t=3.7$, $df=7$, $p=.01$; $d=-1.4$). These means remained low, with statistically significant mean differences across all time points (mean range was from 18-23.9, $p>.01$) compared with the baseline. Physical symptoms declined after the first workshop (baseline $M=34.4$, $SD=11.0$) compared with six-week findings, $M=16.9$, $SD=9.8$ ($t=8.8$, $df=7$, $p=.00$; $d=-1.7$). These means remained lowered, with statistically significant mean differences across all time points (mean range was from 13.8-17.8, $p>.01$) compared with the baseline. Depression symptoms reduced after the first workshop (baseline $M=36.3$, $SD=13.8$) compared with 6 week $M=18.0$, $SD=14.5$ ($t=5.8$, $df=7$, $p=.00$; $d=-1.3$). These means remained low with statistically significant mean differences across all time points (mean range was from 14.5-20.5, $p>.01$) compared with the baseline. Finally, Anxiety symptoms declined after the first workshop (baseline $M=31.3$, $SD=10.8$) compared with six-week findings, $M=15.9$, $SD=8.6$, ($t=5.4$, $df=7$, $p=.01$; $d=-1.6$). These means remained low with statistically significant mean differences across all time points (mean range was from 17.9-21.4, $p>.03$) compared with the baseline.

Chart 1: Distress Changes



Quality of Life

The Quality of Life indicators used in this study were vitality, bodily pain, social functioning and role functioning (see Chart 2). The women in the cohort study had some statistically significant changes in vitality. There were no statistically significant changes in social functioning or at any time point. Vitality means were statistically increased from baseline (baseline $M=25.0$, $SD=18.9$) compared with six-month time point mean of 42.5 , $SD=19.6$ ($t=-2.6$, $df=7$, $p=.04$; $d=1.2$); and at the one-year time point ($M=43.8$, $SD=17.7$) ($t=-2.5$, $df=7$, $p=.04$; $d=0.4$).

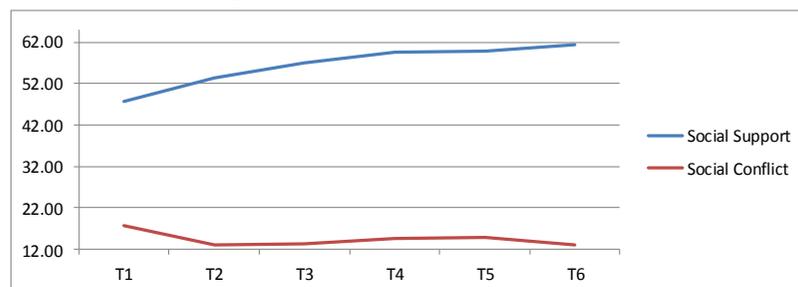
Chart 2: Quality of Life Changes



Social Support and Social Conflict

The social indicators in this study were use of social support and social conflict (see Chart 3). The women in the cohort study had statistically significant and sustained improvements in their use of social support at 6 months and for the rest of the time points. Social conflict scores were statistically reduced at the six-month point and after the year out intervention. There was an improvement in use of social support (baseline $M=47.8$, $SD=11.3$) at the 6 months ($M=57.0$, $SD=13.0$, ($t=-4.1$, $df=7$, $p=.01$; $d=0.4$). These mean improvements remained with statistically significant mean differences across all remaining time points (mean range was from $59.6-61.3$ $p>.01$) compared with the baseline. Social Conflict scores declined (baseline $M=17.8$, $SD=3.4$) at the six-month point ($M=13.4$, $SD=3.2$) ($t=4.6$, $df=7$, $p=.00$; $d=-1.0$). These means were statistically lowered again after the year out intervention ($M=13.1$, $SD=2.9$, ($t=3.2$, $df=7$, $p=.01$; $d=-0.6$).

Chart 3: Social Changes



Discussion

Having endured psychological, physical and sexual violence significantly increases the incidence of mental health problems, including depression, posttraumatic stress disorder, anxiety, suicidal behavior, sleep and eating disorders, social dysfunction, and an increased likelihood of substance abuse (Pico-Alfonso et al., 2006). This was true for the women in our sample, for whom the level of distress was extremely high. What was surprising, however, was that in the early conceptualization of this study, we met with DV service providers from our recruitment site, and decided to offer this research study only to recipients who they considered to be stable and ready for healing. The women who joined our study were stable: raising children, working or going to school, and generally getting on with their lives. These data underscore the amazing resilience of women who move on with their lives and families despite carrying a significant symptom burden. It also suggests that the symptom burden carries on for many years after leaving a relationship. The field of women's mental health could benefit from more studies about the readiness of women to avail themselves of services, and the types of services needed at critical junctures extending well beyond the first year after leaving an abusive relationship.

This study suggests that Biodynamic therapy can be rapid, which is consistent with the limited theoretical literature (Boyesen, 1980; Southwell, 1988). From a neurological standpoint, the person can move from a chronically hypervigilant state (experienced by the person as anxiety, depression, and physical pain) to normal and self-regulating states of arousal dictated by present circumstances. Indeed, we saw instabilities in some symptoms over the course of the year that may be related to these neuro-fluctuations, even though the women were on their way to healing and stable change. Theoretically, the principle of neuroplasticity can be seen as a building block effect, such that trauma exposure can result in incremental enlargement of a fear network in the brain (Kolassa and Elbert, 2007). However, we believe that this same neuroplasticity can allow people to begin to rehearse and relearn life patterns that can restore wellbeing. Feeling a renewed sense of coherence and feeling able to use available social supports (or beginning to form relationships that are fulfilling) can enable the person to re-build a life of health. The benefits of the value of positive emotions is theoretically explicated by Frederickson (Fredrickson, 2001; Fredrickson and Cohn, 2008). Her Broaden and Build theory suggests that positive emotions broaden people's moment to moment thoughts and actions, allowing them to recognize and respond to situations that promote life, happiness, satisfaction and peace. Making these moment-to-moment cognitive, affective, and behavioral choices allows people to bring in resources that further promote their health and wellbeing, including everything from activities, to creative pursuits, to social relationships. When people are trapped in reflexive and habitual responses formed during times of trauma, and reactivated and reenacted repeatedly after the threat has passed, their ability to identify and use potentially positive situations is diminished. When these reflexive pathways are interrupted, a person's natural inclination to identify and use situations to their advantage is enabled.

From a Biodynamic point of view, the discharge of energy that prompts habitual patterns may have enabled the women to recognize and use the positive circumstances and relationships they had put into place in their lives, and to learn new patterns of thinking, acting and relating such that they were able to maintain health and build from there. We believe that 12 months is a short time for such broaden and build changes to achieve their full effect. However, these data do suggest that the reduction in symptoms and

the restoration of wellbeing was sustained over that time, providing the women with the opportunity to begin to find and/or practice new healthful patterns of thinking, feeling, and relating. Further research is necessary to learn what resources and support women may need to make the best use of this critical time in their recovery.

We saw stages of recovery in the women that are somewhat different from those reported in the literature (Herman, 1997; B. A. van der Kolk et al., 1996; B. A. van der Kolk, D. Pelcovitz, & S. Roth, 1996). Herman recognized the establishment of safety, remembrance and mourning, and finally reconnection with ordinary life. The women in this study had been out of their relationships for over four years and had established relative physical safety. However, we found that feelings of safety, security and emotional safety remained an on-going struggle. In light of the number of symptoms and our earlier discussion of the nature of chronic activation of the sympathetic or immobilization systems, women were often not *feeling safe*. Our findings also indicate that reconnection with ordinary life involves numerous processes, and that this was often difficult for participants in our study. For example, since women were grappling with numerous physical and emotional symptoms, meeting the challenges of day-to-day life was a struggle. In general, women learned that the Biodynamic view of trauma could help them understand that even after so many years away from the abuse, trapped energy and incomplete cycles could explain why they had difficulty achieving the zest, vigour, vitality and social engagement that they had been searching for.

We defined healing broadly and theorized that earlier interventions would “unfreeze” the women’s neurophysiological system. However, we gave two more interventions aimed at not only reducing symptoms but also improving functioning. While there are dramatic changes in symptoms that were sustained over time, the changes in other aspects of health such as quality of life or meaning were slower to change. For example, while social functioning (as measured by the SF-36) didn’t improve, social conflict reduced and use of social support increased. When we understand healing as moving beyond symptom reduction to moving back into the social world after social isolation, this finding is an important one. In addition, since symptom burden, functioning and social engagement are interrelated, we can expect that over the course of a year, people healing from trauma might experience uneven changes or times when their problems return temporarily. Therefore, we recommend future research that maintains a broad-based conception of what healing is expected when, and why these may be so.

The limitations of this pilot study include the very small sample. In addition, we did not use a control or treatment as usual group. Our aim was to determine the feasibility of this approach to healing for women from this population, and we discovered that women would not only engage in the healing, but also engage in research related to the value of this approach for their mental and physical health. The data reported here are promising and support larger and more complex trials and comparison research studies with other types of more standard intervention methods such as cognitive behavioral therapy. While we did not collect all of the data from our sample about past history with the mental health system, women reported diagnoses and medication usage, suggesting at least some encounters with the medical system.

Additional research is needed to learn what services women access and the benefits and limitations of those services to assist with the healing women need to fully thrive after leaving an abusive relationship. This was an important longitudinal study of a cohort of

DV women and demonstrated that these women were able to gain significant reductions in their symptom burden. In addition, the measures of quality of life showed that these reductions in symptoms may have translated into an improvement in their quality of life, especially in the areas of bodily pain and vitality. The clinical foci were working with the feelings of being stuck or frozen, and opening up to life and relationships. The aim seemed to be to help the women get re-activated, and re-engaged in their lives, to complete actions they needed to complete, and to release the trapped energy so that it was available for other important uses.

BIOGRAPHIES

Denise Saint Arnault, PhD, RN is an Associate Professor of Nursing at the University of Michigan. In clinical practice as a psychiatric nurse, she provided psychotherapy for women who were recovering from trauma. Her recent research has focused on the use of integrative interventions to aid in trauma recovery, including Biodynamic Psychotherapy and narrative approaches to promote help seeking for distress. Other research includes federally funded studies that examine personal, cultural and social influences on illness experiences and help-seeking for mental health distress and trauma.
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Sharon O’Halloran, BD, Dip. Mediation, MGBII, has been the Director of SAFE Ireland, the national representative body for domestic violence services in Ireland for the past 13 years. She has worked in the community for over 20 years with expertise in organisational change, leadership, social change and violence against women. As part of her work with SAFE Ireland she explores new ways of healing from trauma and ending intergenerational cycles of domestic violence. As a fully qualified biodynamic psychotherapist, she is also interested in the intersection between organisational development, social change and healing.
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Correlations Between Tests for Grounding, Breathing and Self-efficacy in Individuals With and Without Chronic Pain: Who is "Standing with Both Feet on the Ground?"

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Received 29 June, accepted 2 December 2014

Abstract

Postural balance (grounding) and breathing are basic psychomotor functions that can be disturbed in patients with chronic pain. Self-efficacy plays an important role in treatment programs that address improved coping with pain. The aim of this study was to evaluate whether balance and breathing tests could discriminate between a group of patients with chronic pain and a healthy group and to test their correlations with psychometric tests. A conceptualization of grounding that incorporates physical and psychological factors is proposed. **Methods:** In this cross-sectional study 62 patients with chronic pain and 40 healthy individuals were examined using physical tests to measure postural balance and breathing and psychometric tests to measure self-efficacy and pain. Relationships among the measures were analyzed. **Results:** Significant differences ($p < 0.001$) were found between the patient group and the control group in all balance and breathing tests and in the self-efficacy tests. Participants who performed correctly in two or more of the balance tests were ten times more likely to report high self-efficacy than those who did not. **Conclusion:** The balance, breathing, and self-efficacy tests discriminated significantly between the groups. Concurrent validity between some balance tests and self-efficacy could be shown. Further studies to confirm that predictive validity should be done.

Keywords: chronic pain, grounding, breathing, rotation, postural balance, self-efficacy

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
Volume 14, Number 1 spring 2015 pp 35-47. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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Acknowledgements: A grant from CH-EABP provided statistical support for this study.

A majority of patients with low back pain and pain in general are categorized as having non-specific back pain (NSBP, no clear physical cause) or medically unexplained symptoms (MUS) (Kirmayer, Groleau, Loope, & Dau, 2004). Many develop chronic pain lasting longer than three months (Chou & Shekele, 2010). There is evidence that depressed mood, distress, fear-avoidance behavior, and tendencies to somaticize and catastrophize are important background factors and

predictors of the development of chronic pain (Pincus, Burton, Vogel, & Field, 2002; Vlaeyen & Linton, 2000). Some NSBP patients have coordination dysfunctions, which can lead to mechanical pressure on tissues and joints (Luomajoki, 2011; O'Sullivan, 2005). Understanding the relationship between NSBP, depression and coordination dysfunction could lead to novel treatments. This study hypothesizes that motor patterns could be effective predictors for the development of chronic pain.

The experience of fear reflexively activates muscles in an arousal and startle reaction pattern released from the lower parts of the brain in the reticular formation (RF). The RF connects directly to the amygdala in the limbic system, setting the arousal level and processing emotional unconscious material, which then connects to the prefrontal cortex where fear (or the realization that a fear response is not necessary) becomes conscious (Davis, Falls, Campeau, & Munsoo, 1997; LeDoux, 1996). When the threat is sudden, such as an unexpected sound or visual impression, a free fall, and/or bodily pain, this unconscious startle reaction is released (Brown et al., 1991), leading to the following somatic response patterns: The muscle tonus increases in the flexor muscles around the center of the body to protect the solar plexus and diaphragm, the neck and back bend forward, the arms and elbows flex, the shoulders are protracted and raised, the abdominal muscles contract, the person breathes in and holds the breath, the intercostal muscles contract, and tonus in the lower extremities increases in preparation for running.

If this arousal pattern persists over time it creates a vicious cycle in which additional fear is triggered, which further triggers the sympathetic nervous system, which increases the static sensitivity of the muscle spindles, which triggers pain, which again triggers fear, beginning the cycle again (Johansson, Sjölander, Djupsjöbacka, Bergenheim, & Pedersen, 1999). How easily the startle response is released depends on the general emotional status of the amygdala (Bradley, Lang, & Cuthbert, 1993).

A person who experiences adult or developmental trauma is likely to have sustained a shock reaction, with high tonus above the diaphragm muscle and very low tonus below the diaphragm muscle – a shutdown described by Porges (2011). Johansson et al., (1999) state that increased activity in the sympathetic nervous system decreases the precision in the servomechanism of proprioceptors in the joint capsules and muscles. One cause of persistent low back pain may be the steeper slope position of the diaphragm muscle (due to increased tension), which has the effect of over-stabilizing or stiffening the posture (Kolar et al., 2012). When the fear patterns described above persist, breathing muscles can stiffen, contributing to a decreased rotation of the postural muscles in the trunk (B.H. Bunkan, ongoing personal communication, 2003-2014).

Being able to stand physically on the ground with both stability and flexibility requires adequate neuromuscular postural function from the trunk, legs, and feet. To feel safe while standing derives also from an inner transferred feeling of psychological safety – being grounded and centered. This experience of being grounded has a deeper psychological meaning relating to existence and the ability to ground oneself in life (Gyllensten, Skär, Miller, & Gard, 2010; Lowen, 1976; Merleau-Ponty, 1962). The expression “to stand with both feet on the ground” speaks a mind-body language with a symbolic meaning, but can it be explored scientifically?

Another area of study, self-efficacy, has been examined in the pain literature, but has not been assessed related to postural balance and movement. Self-efficacy is the belief in one's own ability to effectively control specific events in life (Bandura, 1997). Self-efficacy can account for significant variance in the treatment outcome of pain patients. It plays an important role in the improvement of coping with NSBP (Denison, Asenlöf, Sandborg, & Lindberg, 2007). Finally, in medical research, measures of postural sway and center of pressure, while an individual stands on a force platform, are

common methods for testing postural control (Muto et al., 2014; Ruhe, Fejer, & Walker, 2011). No study has been found that correlates balance and breathing tests to psychometric tests in patients with chronic neck and back pain.

Aims

The general aims of this study were:

- 1) To assess possible differences in balance and breathing function between a group of healthy individuals and a group of patients with chronic pain, and
- 2) To validate six breathing and balance tests in relation to several psychometric tests.

Research questions

1. Do the six balance and breathing tests discriminate between a healthy group and a group of patients with chronic musculoskeletal pain?
2. Is there a difference in level of self-efficacy between the healthy group and the patient group?
3. Is there an association between the three balance tests and the psychometric tests for self-efficacy and experienced pain?
4. Is there an association between the three breathing tests and the psychometric tests for self-efficacy and experienced pain?
5. Is there an association between the sum of the balance tests, the sum of the breathing tests and the level of self-efficacy?
6. Is there an association between the sum of the balance tests, the sum of the breathing tests and experienced pain?

Methods

Participants

All participants were required to speak German and to be capable of understanding the consent and assessment forms. For the patient group (PG), 62 inpatients with musculoskeletal pain lasting more than three months were consecutively chosen over a period of five months within a hospital-based pain clinic. The inpatients were chosen by the head of the Physiotherapy Department according to the inclusion and exclusion criteria described below.

The diagnoses used were those made by a medical doctor and found in patient charts. Allowed diagnoses were: fibromyalgia, chronic fatigue syndrome, non-specific low back pain, non-specific musculoskeletal pain, post-operative persistent pain, lumbago, cervicalgia, chronic panvertebral syndrome, muscular dysbalance and whiplash injury with persistent pain. Excluded diagnoses were: radiating pain with a neurological correspondence to one segment, herniated disc diagnosed within the last six weeks, and pain due to malignancy. The resulting participants were 35 women and 27 men between the ages of 30 and 60 (see Table 1).

The control group (CG) was recruited in the first author's home village. A flyer requesting voluntary participation was posted in letterboxes, and respondents came to a private clinic for assessment. To be considered for the CG, individuals needed to be healthy, with no musculoskeletal pain lasting longer than three weeks during the last year. The resulting group consisted of 40 persons (24 women and 16 men) (See Table 1.).

The Research Ethical Committee of the Medical Faculty of Lund University, Sweden approved

the study, LU 368-03. Participants were informed in writing about the study before they agreed to participate. The correspondence contained information about the purpose of the investigation, that participation was voluntary, that participants could withdraw at any time and that the data would only be presented confidentially with each person being given a number.

Table 1: Demographic and Pain Characteristics of Participants

	Patient Group (n=62) %	Control Group (n=40) %
Mean Age	44.2	45.3
Women	35 (56%)	24 (60%)
Men	27 (44%)	16 (40%)
Duration of pain		
3-12 months	15 (24%)	
1-2 years	11 (17%)	
> 2 years	36 (59%)	
Married/cohabiting	37 (60%)	36 (90%)
Single	25 (40%)	4 (10%)
--- citizen	43 (69%)	40 (100%)
Foreigners living in ---	19 (31%)	0
Education		
Compulsory school or Less	17 (27%)	0
Trade school	32 (52%)	12 (30%)
College	10 (16%)	15 (38%)
University	3 (5%)	13 (32%)

Materials and Procedures

Patients were scheduled for this project as well as for treatment as usual (TAU) within the clinic. TAU included ergonomic training, strength and endurance training, pool exercises and relaxation exercises. The tests were carried out once by the first author of this paper at any time during the treatment period of three to six weeks (cross-sectional design).

Clinical tests.

Testing began with the breathing and the balance and coordination tests, followed by the psychometric tests. After the psychometric tests, the breathing and balance tests were repeated. The best result of the breathing and balance tests was counted. The balance tests used in the present study have been validated for measuring postural sway in an unpublished pilot study for NSBP patients (Johansson, 1991).

Standing on one leg (Johansson, 1991). This test examines the participant's ability to maintain a centerline while standing on one leg with arms hanging at the sides. Participants chose which leg to stand on first and results for the best leg were chosen for the report. Three tries were allowed. Scoring is as follows: 0 = the person can stand correctly >30 seconds; 1 = the person can stand without putting the lifted foot back on the ground for at least 30 seconds but demonstrates many

equilibrium reactions in the arms, leg and trunk; 2 = the person cannot stand on one leg for 30 seconds.

Standing on one leg while rotating the head left and right (Johansson, 1991). This test examines stability combined with flexibility in rotation of the upper body parts, neck, and upper thoracic spine. Participants chose the turning rhythm by themselves. Scores ranged from 0-2 as described above.

“Standing ski step” (Johansson, 1991). This test was chosen to examine stability combined with flexibility in the legs and pelvis, the lumbar and lower thoracic spine, and to test the participant's ability to rotate the spine and coordinate between the left and right sides of the body. It consists of long alternating forward and backward steps with reciprocal arm movement: five steps with the left leg, five with the right and five with the left. To achieve a full score, the participant must be able to change legs twice and count the 15 steps him – or herself. The trunk must rotate. Scoring is as follows: 0 = test is performed correctly; 1 = person can perform correctly after being prompted (e.g., can do reciprocal movements after being reminded that he or she is moving the same arm and leg forwards and backwards); 2 = person cannot perform the reciprocal movements correctly with rotation in the trunk, even with prompting.

Deep breath location. During all three breathing tests, the participant sat on a chair while the examiner observed the breathing. The deep breath location was categorized as either high costal or basal costal. A controlled diaphragm breath was categorized as basal costal.

Deep breath test. The increase of chest circumference in cm, while deep breathing was measured with a tape measure held at the level of the xiphoid process.

Chest elasticity. The quality of chest elasticity was assessed with a modified Bunkan test (Bunkan, 2003). The examiner puts both hands on the chest to assess elasticity while compressing the chest at the basal costal level. Scoring is as follows: 0 = normal elasticity (popularly said “like a raw fillet of meat”); -1 = hypotonic (“like whipped cream”); 1 = slightly hypertonic; and 2 = very hypertonic (“like a hard tire”).

Psychometric tests

All psychometric tests presented below have been tested for reliability and validity for patient groups with NSBP by the authors mentioned for each test.

Visual Analogue Scale (VAS Pain). Pain intensity was assessed with a 10-cm visual analogue scale (Huskisson, 1983). The end point on the left was marked 0 (no pain at all) and the end point on the right was marked 10 (unbearable, maximal pain). The patient marked the line to indicate pain intensity experienced during the last three days. The distance from the left to the right end was measured in cm.

Arthritis Self-Efficacy Scale (ASES)-D – German version. Self-efficacy expectancies concerning coping with pain and other disease-related symptoms (e.g., “How sure are you that you can reduce the symptom at least a bit?”) were assessed with the 8-item validated short form German-language version of the American ASES (Lorig, Chastain, Ung, Shoor, & Holman, 1989; Müller & Hartmann, 2003). Values range from 1 (very uncertain) to 10 (very certain). Higher scores indicate more strongly perceived self-efficacy. Each score was calculated separately, as well as the mean of the eight scores. In a German investigation of 148 fibromyalgia patients (Müller & Hartmann, 2003) the maximum score of certainty was 8 and the total mean score was 4.7 (SD, 1.6). In the present investigation, “arthritis or fibromyalgia” was replaced by “disease/symptom.” The ASES-D was used only for the patient group.

General Self-efficacy. This assessment tool intends to reflect a personal trait (Jerusalem &

Schwarzer, 1992). It queries an individual's expectancy of general competence and capacity to deal with difficulties and barriers in everyday life (e.g., "I can always manage to solve difficult problems if I try hard enough.") It contains 10 items scored on four scales: the higher the score, the higher the estimated general self-efficacy. The maximum score is 4. Collection of Internet data from 10,000 people using this assessment tool yielded a mean value of 2.9 (SD 0.4). Schwarzer, Mueller, and Greenglass (1999) showed that for a sample of East German adults moving to West Germany after the wall had fallen, the general self-efficacy scale predicted psychosomatic symptoms two years later. Both groups answered this questionnaire.

Questionnaire on Competence and Control Belief (Fragebogen zu Kompetenz und Kontrollüberzeugungen; FKK). This instrument (Krampen, 1991) was tested on 2028 German adults and found to be reliable and valid (Cronbach's Alpha: .70 to .90; Spearman-Brown Split-half reliability: .64 to .82). It is also correlated with the Beck Depression Inventory. It is based on the action theory of personality and the control belief theory, which says that knowing the systematic pattern of personality variables makes it possible to predict a certain course of action. Beliefs and behaviors are based on, and continuously modified by, multiple sources of sensory information. A control belief is defined as the extent to which an individual believes he or she can personally influence a situation (internal control belief) or not (external control belief, or destiny). The 32-item questionnaire contains four parts, each with eight items. Each item has six scores rated from 1 (very false) to 6 (very true). The four parts are: 1. FKK/SK "Selbstkonzept eigener Fähigkeiten"/self-concept of personal competence, mean value 31.9 (SD 6.1), with questions like, "It mainly depends on me whether other people adjust to my wishes."; 2. FKK/I "Internalität"/ internal control, mean value 32.4 (SD 5.4); 3. FKK/P "Soziale Externalität"/socially caused externality or powerful other, mean value 26.1 (SD 5.9); and 4. FKK/C "Fatalistische Externalität"/fatalistic externality or chance, mean value 26.8 (SD 6.2).

In the present study, each score was counted separately, and a mean score for each subscale was computed. A low FKK/SK score points to low self-efficacy. A low FKK/SK score together with high FKK/P and FKK/C points to depression with a strong belief in external control, a situation similar to learned helplessness. People with very high scores of FKK/SK, and very low scores of FKK/P and FKK/C are unrealistic in their estimation of their own personalities (Krampen, 1991). Both groups used this instrument.

Statistics

To compare patients and controls the Fisher's exact test was used to analyze categorical variables. The result "Yes" is defined as a score of 0 (can perform the balance test completely satisfactorily). The result "No" is defined as a score of 1 or 2 (cannot perform the balance test satisfactorily or cannot perform it at all). The Mann-Whitney U test was used to analyze ordered categorical data such as the chest expansion, chest elasticity, and self-efficacy tests. See Table 2.

Associations between the psychometric tests and the balance functions were calculated with Spearman's rank correlation coefficient. Fisher's exact test was used to measure associations between variables measured on a nominal scale. Stepwise logistic regression analysis was performed to determine the impact of the psychometric tests and VAS pain on the balance functions. The probability tests were two-tailed. For the logistic regression analysis, the three balance tests were counted together (range = 0-6), providing a maximum sum of 0 or a minimum of 6. The variables were dichotomized and divided into two groups: Good balance (0-2) and poor balance (3-6). The self-efficacy tests were divided below and above the mean values obtained in this study. Self-efficacy scores below and above the mean value were defined as low and high respectively. VAS pain ≤ 6 was counted as low pain and >6 was counted as high pain.

Results

Highly significant differences ($p < 0.001$) were found between the PG and CG in all variables. Individuals in the PG had poorer balance, used high costal breathing more often, expanded the chest less during deep breathing, had a less elastic chest and reported lower self-efficacy than the CG participants (see Table 2).

Table 2: Comparisons of Balance, Breathing, and Self-efficacy Test Results for Patient Group (PG) and Control Group (CG) Using Fischer's Exact Test (Balance Tests and Tests for High Costal and Basal Costal Breathing) and Mann-Whitney U Test (Chest Expansion, Chest Elasticity and Self-Efficacy Tests)

Test Type	PG (n=62)		CG (n=40)		p	
Balance	One leg stand	Yes	29 (46.8%)	39 (97.5%)	<0.001	
		No	33 (53.2%)	1 (2.5%)		
	One leg stand with head turn	Yes	8 (12.9%)	28 (70%)	<0.001	
		No	54 (87.1%)	12 (30%)		
	Ski step	Yes	6 (9.7%)	35 (87.5%)	<0.001	
		No	56 (90.3%)	5 (12.5%)		
Total balance score = 0-2 ^a		19 (30.6%)	40 (100%)			
Total balance score = 3-6 ^a		43 (69.4%)	0			
Breathing	High costal	36 (58.1%)	4 (10%)	<0.001		
	Basal costal	26 (41.9%)	36 (90%)			
	Chest expansion median ^b (range)	2.0 (-1.5-5.0)	3.3 (0.0-7.5)	<0.001		
Chest elasticity median ^a (range)	1.0 (-2-2)	0.0 (-1-1)	<0.001			
Self-efficacy	M	SD	M	SD		
	ASES-D	4.8	1.7			
	General self-efficacy	2.7	0.7	3.2	0.4	<0.001
	FKK/SK	29.8	8.0	36	4.6	<0.001

Note. ASES-D = American Self-Efficacy Scale-Deutsch. FKK/SK = Questionnaire on Competence and Control Beliefs/Self-concept of Personal Competence (title translated from the German).

^a For balance and breath elasticity scores only, lower scores indicate better balance and higher chest elasticity.

^b Measured in cm.

Moderate correlation was seen between standing on one leg with and without head turning and general self-efficacy, ASES-D and FKK/SK (see Table 3). The standing ski test correlated only to general self-efficacy. When the sum of the balance tests was calculated, the correlations to self-efficacy tests increased in two tests. None of the breathing tests correlated with the psychometric tests. Both VAS pain and the balance tests showed only a weak correlation to the test of standing on one leg.

Table 3: Correlations of Balance to Self-efficacy tests and Pain in the Patient Group, using Spearman Rank Order Correlations

Balance Test	General SE	ASES-D	FKK/SK	Pain
Standing on one leg	-.46***	-.37**	-.44**	.29*
Standing on one leg with head turn	-.42***	-.49***	-.38**	ns
Ski step	-.47***	ns	ns	ns
Sum balance (0-6)	-.57***	-.47***	-.46***	

Note. General SE= general Self-efficacy. ASES-D = American Self-Efficacy Scale – Deutsch. FKK/SK = Questionnaire on Competence and Control Beliefs/Self-concept of Personal Competence (title translated from the German).

ns= not significant, $p>.05$, significant * $p<.05$, ** $p<.01$, *** $p<.001$

Table does not include breathing tests. Correlations between breathing measures and Self-efficacy tests were not significant.

To determine the impact of the psychometric tests (three self-efficacy tests and VAS pain) as predictors of the sum balance score, a stepwise logistic regression was carried out. Since the breathing tests did not correlate with the psychometric tests, they were removed from the model. The sum balance score was dichotomized as good (0-2) versus poor (3-6) balance, and VAS pain was dichotomized as below versus above 6 cm. The three self-efficacy tests were dichotomized as below and above mean values for this study. The resulting odds ratio and confidence intervals are presented in Table 4.

The variable that best explained good balance was an ASES-D score above the mean value of 4.8. ($R^2 = 0.28$). Odds were 10 times higher of having good balance if a person in the PG scored >4.8 on the ASES-D. The more a person in the PG believed that he or she could handle and have an impact on pain, the better the person's coordination was while standing. VAS pain did not predict good balance since the confidence interval contained the value one. The wide confidence intervals point to an uncertainty within the estimated odds ratio because very few patients succeeded in the balance tests.

Table 4: Summary of Univariate Logistic Regression Analysis Predicting Having Good Balance in the Patient Group ($n=62$)

Measure	OR	95% CI
ASES-D > 4.8	10.0	[2.5 - 39.7]
General Self-efficacy > 2.7	6.1	[2.0 - 18.2]
FKK/SK > 30	4.6	[1.6 - 13.5]
VAS pain < 6	0.4	[0.1 - 1.3]

Note. Balance measure used was the dichotomized sum balance score. CI = confidence interval for odds ratio (OR). ASES-D = American Self-Efficacy Scale – Deutsch, FKK/SK = Questionnaire on Competence and Control Beliefs/Self-concept of Personal Competence (title translated from the German). VAS = Visual Analogue Scale.

Of the 20 patients who scored high on the FKK/P (powerful others) and FKK/C (chance control) together with a low score on FKK/SK (self-concept of personal competence), a sign of learned helplessness and depression, 18 of these patients also reported low self-efficacy on the ASES-D and general self-efficacy instruments. 19 of the 20 also had poor balance (scores of 3-6).

Discussion

Highly significant differences were found between the PG and CG in all variables assessed. The groups differed significantly in the location of the breath and in the ability to breathe deeply and thus increase the chest circumference, with more PG participants showing high costal breathing. Sudden or developmental trauma can fixate a person in a chronic startle, freeze or shock reaction with high costal breathing, described by Porges (2011).

PG participants showed less elasticity in the chest, consistent with the findings of Bunkan, Opfjordsmoen, Moen, Ljunggren, & Friis (1999, 2003). This stiffness could be a sign of guarded behavior, in general. It may also be a sign of increased tension in order to withhold emotions, a phenomenon commonly seen by body psychotherapists and suggested by Reich (1949) and Lowen (1976). These possibilities could be researched further using measures of emotional styles and breathing.

The breathing tests did not correlate significantly with the psychometric tests, yet differentiated the PG and CG very well from one another. The differentiation of the breathing location was very approximate—high costal and basal costal. The basal costal group may have included persons with controlled diaphragm breathing, which could possibly indicate a freeze reaction with high tonus. Very few PG participants were able to expand the chest as much as even the poorest performers in the CG. Additional research could tease apart potential differences between patients with basal costal and controlled diaphragm breathing.

The balance tests of standing on one leg and turning the head from side to side and the standing ski step were the most discriminating tests. They include rotation of the neck and trunk, which are likely to be influenced if a person experiences increased tonus over time. These results are consistent with those of another study of chronic pain patients, in which a lower degree of trunk rotation during walking was found to be due to hyperstable coordination patterns that indicated guarded behavior (Selles, Wagenaar, Smit, & Wuismann, 2001). In the present study, some of the patients who performed poorly standing on one leg were unable to stand even five seconds before losing their balance. Based on palpating muscle consistency, Bunkan et al., (2003) found that the strongest discriminators between healthy subjects and patients with pain, psychosis or nonpsychotic mental disorders were hard central muscles and slack peripheral muscles. The consistency of the leg muscles was not assessed in this study.

PG participants might also have been exhibiting learned helplessness (Seligman & Maier, 1967). From a psychomotor developmental perspective it is possible that their own will has not been allowed expression (stamping, kicking), so that a healthy charge has not been developed in the legs (Lowen, 1976). This study indicates that if a person is unable to stand on one leg for longer than 30 seconds, he/she is more likely to have a low self-efficacy score. The sum balance correlation coefficient of the psychometric tests was moderate ($r = -.46$ to $-.57$), indicating that factors other than self-efficacy could influence and explain poor or good balance. Participants with high scores (>4.8) on the ASES-D were 10 times more likely to have good balance.

Since the results of the balance tests were not linear, a univariate logistic regression analysis in which balance scores were dichotomized into clinically relevant cutoffs (poor balance = 3-6 and good balance = 0-2) was done. Of the self-efficacy tests, the ASES-D best explained the correlation between balance and self-efficacy. The other two self-efficacy scales did not add additional explanations. A German study of patients with chronic pain showed that high self-efficacy (ASES-D) correlated with a better treatment result (Müller & Hartmann, 2003). Another study points to the correlation between low fear-avoidance and high self-efficacy (Denison et al., 2007).

In this study, the mean value of the ASES-D within the PG (4.8) was close to the mean value of 4.7 obtained in a study of patients with fibromyalgia (Müller & Hartmann, 2003). The value is thus sufficiently dichotomized in the calculation for predictors of good balance. Twenty patients had a low score on FKK/SK and a high score on FKK/PC, signifying learned helplessness and depression. This is in accordance with Müller and Hartmann's findings (2003), which showed strong correlations among depression items in the ASES-D, general self-efficacy, and pessimism. Clients often express their inner experienced helplessness and depression as pain. Of particular interest in the present study is that 19 of these 20 patients also had poor balance (scores of 3-6). Further studies using a larger sample size could verify these findings statistically.

Of the three balance tests only one correlated with a reported experience of pain (VAS >6) and this correlation was weak. Therefore, the threshold of >6 cm was not a good dichotomized predictor for good or poor balance. It is possible that only very high pain intensity levels affect the grounding capacity. In the pain clinic of Valens, Switzerland, VAS pain with a cutoff >9 was estimated as a negative predictor of treatment outcome.

The present study suggests the importance of integrating both balance and self-efficacy tests in the clinical assessment of patients with pain. For the general practitioner, psychotherapist

or physiotherapist working with NSBP patients, it might be helpful to have access to easily manageable balance tests without the need for technical equipment. Such tests could identify individuals with pain who may need extra support in trusting their own competence, or in adjusting to reality by increasing their true self-efficacy instead of overestimating their capacity. NSBP patients are usually medically oriented and do not want to hear anything about psychological traits. A somatic test that says something about patients' psychological state could be valuable for general practitioners and therapists.

Limitations

This study has a number of limitations. Although the CG and PG were well matched in terms of sex and age, the group contained mostly Swiss participants with higher education and who were cohabiting or married in the CG. These variables might have influenced self-efficacy, which was found to be higher in the control group. Even though a standardized scoring was used and the observer was very experienced, using only one observer (the first author) could lead to bias. Another method would have been to videotape the tests and study the films afterwards, without the raters having knowledge of participants' group membership.

The wide variance coefficient points to an uncertainty in the estimated odds ratio, due to the small number of people in the PG who could perform the balance tests correctly. Increasing the number of individuals in the PG in a future study would allow for more definite statistical results concerning correlations between poor balance and low self-efficacy.

Conclusions

The present study shows that the postural balance, breathing tests, and self-efficacy tests highly discriminated between the PG and CG. Two of the balance tests and especially their sum score systematically correlated with all three self-efficacy scales. In contrast, the breathing tests did not correlate with the tests of self-efficacy.

The folkloric expression "to stand with both feet on the ground" generally refers to a stable and realistic person who can coordinate the body in a flexible way. This study echoes the expression.

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Semantic Expressions of the Body Boundary Personality in Person-centred Psychotherapy

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Received 15 October, accepted 20 December, 2014

Abstract

This study is based on the assumption that the exposure and internalisation of social values, and behavioural expectations represent the most important influence in the formation of body boundary finiteness (Fisher & Cleveland, 1958) and the development of psychological disturbances (Rogers, 1951, 1961). Given this relationship between body boundary formation and Roger's influence on the development of body psychotherapy, this correlational study examines the use of words and changes in body boundary finiteness of twelve patients attending person-centred psychotherapy. It does this by measuring the strengths of associations between barrier imagery, as measured using the Body Type Dictionary (BTD) (Wilson, 2006), and the general semantic content, as measured using the Linguistic Inquiry Word Count text analysis program (LIWC) (Pennebaker, Booth, & Francis, 2007), as well as progressive psychotherapy sessions in the verbal behaviour of low and high barrier patients. The findings of this study might benefit body psychotherapy practitioners to obtain a deeper insight into the body boundary and its regulatory function of inter- and intra-psycho processes.

Keywords: Body boundaries, psychotherapy, semantics, primordial cognition, person-centred psychotherapy

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
Volume 14, Number 1 spring 2015 pp 48-64. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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This article aims to explore whether the clarification of internalised familial and social values would stimulate changes in patients' body boundary finiteness. Individuals typically differ in their body boundary awareness. Particularly, the exposure and internalisation of familial, stable and secure values and behavioural expectations are assumed to represent the most important influence in the formation of bodily boundaries (Fisher & Cleveland, 1958). Although exposure to a stable and secure family environment is typically perceived to be a fortunate occurrence, Rogerian person-centred theory (1951, 1961) states that the internalisation of values that are incongruent with the true self contribute to the development of psychological disturbances. Given the theoretical relationship between body boundary formation and Rogerian person-centred theory, patients should experience changes in their body boundary finiteness within an empathic psychotherapeutic process. Such changes in body boundary finiteness would represent some empirical support related to the effectiveness of psychotherapy to bring about changes in the body boundary awareness as well as indicating how body boundary awareness is embodied in the language patients use within the psychotherapeutic context. Out of this context, this study might be helpful to

practitioners of body psychotherapy to further their understanding of the intra- and inter-psycho functions associated with the body boundary personality.

Fisher and Cleveland's Body Boundary Concept

Fisher and Cleveland (1956, 1958) observed that individuals vary in the appraisal of their body boundaries to the extent that there is considerable variation in the firmness or definiteness persons ascribe to their body boundaries. At one extreme is the individual who views his body as clearly and sharply bounded, with a high degree of differentiation from non-self objects and the opposite pole is the person who regards his body as lacking demarcation or differentiation. (Fisher, 1970, p. 155).

Fisher and Cleveland reasoned that individuals would project their phenomenological experience of their own body boundaries onto their environment. Therefore, individuals with more definite body boundaries would show a greater tendency to direct their visual attention to the protective and enclosing features in their environment, as opposed to individuals with less definite body boundaries.

In a series of empirical studies using projective tests, including the Rorschach inkblot test (Rorschach, 1921), Fisher and Cleveland developed a manual scoring system that measured the frequency of words that related to the definiteness and permeability of an individual's body boundaries. barrier imagery emphasised the protective and enclosing features of the boundaries of a definite structure and surface, whereas penetration imagery related to the fragility and permeability of definite boundaries. Based on this scoring system, a high frequency of barrier imagery corresponded to a high barrier personality, whereas a low frequency of barrier imagery indicated a low barrier personality. Examples of barrier responses were "a striped zebra", "a woman wearing a high-necked dress", "a tower with stone walls", "a man smoking a pipe", and "a pregnant woman", and examples of Penetration responses included "a man climbing through a window", "an amputated arm", "an open mouth", and "a bleeding leg".

Most importantly, Fisher and Cleveland (1958) suggested that an individual's degree of body boundary finiteness is correlated to the social values and behavioural expectations learned from interactions in family environments. For example, mothers of high barrier personalities scored lower on maladjustment and rigidity scales than mothers of low barrier personalities. Based on this result, Fisher and Cleveland (1958, pp. 259-260) interpreted that individuals with definite body boundaries would have mothers that provided a secure model and strong values as well as the ability to maintain stable and intimate relationships, whereas individuals with less definite body boundaries would grow up in family atmospheres characterised by instability, insecurity and tension. Although high barrier personalities might be construed as a favourable personality trait compared to the low barrier personality, it has to be noted that Fisher and Cleveland's observation of high barrier patients with rheumatoid arthritis showed reservations in expressing negative emotions, such as anger and frustration. The focus on enclosing peripheries and the rigid appearance of bodily stiffness might, on a psychosomatic level, reflect a defensive function by containing and controlling these negative emotions that are perceived as unacceptable, overwhelming or threatening. The body functions, then, as an enclosing container "whose walls would prevent the outbreak of these impulses" (p. 55). If also not explicitly stated by Fisher and Cleveland (1958), the extreme development of high and low body boundaries might be perceived to result in defensive forms of affect regulation, whereas body boundaries in the middle range on the high-low barrier personality continuum might represent more functional forms of regulating emotions.

These findings are also consistent with psychodynamic theories that perceive early socialization experiences to represent one of the strongest influences on the formation of a coherent self and bodily schema (Ogden, 1989; Bick, 1968, Winnicott, 1971). Thus, individuals with coherent self and bodily schemas are assumed to communicate their internal mood states to their social environment, whereas the inhibition to express one's internal experiences is assumed to indicate dissociation from one's emotions and thoughts (Bollas, 1987). Based on the Freudian theory (1923) that perceives a relationship between the body and the unconscious, Cariola (2015) identified that autobiographical memories of high barrier personalities used more words associated to primordial mental activity, such as group references, somatosensory processes, and spatial references. In contrast, low barrier personalities showed increased use of semantic content related to conceptual thought, such as self-reference, as well as affective and cognitive processes. Primordial mental activity and conceptual thought represent similar concepts to the Freudian (1900) modes of cognitive functioning that differentiate between the primary and secondary processes. Primary process is concrete, irrational, unrelated to spatio-temporal constraints, and free from social and moral conventions. It is also the principal awareness of young children, and it has also been associated with the cognitive functioning of Altered States of Consciousness, including dream, meditative, mystical and drug-induced hallucinatory states. In contrast, secondary process is abstract, related to the principles of grammar and logic, time and space, social and moral conventions, and it is the cognitive functioning of older children and adults.

Rogersian Person-centred Psychotherapy

Rogers' core conditions

Person-centred psychotherapy employs a non-directive approach emphasising the therapists' use of reflection as a means to summarise what the client expresses about their feelings and thoughts, thus their phenomenological experiences are fully acknowledged by the therapist. Most importantly, Rogers (1961) stressed the notion of the psychotherapeutic climate as a pre-requisite for a deep understanding by the therapists of their clients and for the desired psychotherapeutic changes to occur. Through the psychotherapeutic processes that depend substantially on three core conditions — 1) the therapist's congruence or genuineness, 2) unconditional positive regard, 3) empathic understanding — patients will be supported to gradually assume more inclination to trust their intuitions, values, needs and desires. This growth enables patients to find their phenomenological self and develop a stable and healthy self-concept, in addition to recognising their personal worth that is independent of external approval.

Reich's Bodily Armour

Rogers' (1951, 1961) person-centred approach to psychotherapy can be construed as a foundation for psychotherapies that use body awareness or movement, including body psychotherapy, gestalt psychotherapy, dance/movement therapy and bioenergetics. Body psychotherapy perceives the body, mind, internal and perceptual processes to be intertwined aspects of the self-experience and grounded intersubjective meaning that are explored and enacted within the psychotherapeutic relationships through direct physical contact and expressive behaviour (Röhrlich, Gallagher, Reuter, & Hutto, 2014). The mind-body focus of such psychotherapeutic approaches facilitates "a movement inwards" (Davis, 2012) as a means of being aware of and experiencing internal processes in the present rather than in the past; this inward focus is thought to facilitate an authentic experience of emotions and feelings as part

of a self-actualisation process (Behr & Becker 2012). In particular, Rogers (1961) emphasized that psychological changes would result in experiential shifts and physical loosening of the organism to the extent that the body would manifest patients' moments of self-actualization (Fernald, 2003). In this sense, Rogerian therapy influenced body psychotherapy in becoming person-centered by focusing on the experiential and embodied inner self situated within the here-and-now. Although verbal psychotherapists might assume a stronger theoretical level by focussing predominantly on patients' verbal content, as pointed out by Leijssen (2006), humans are essentially interacting bodies "and we are confronted with the body as a metaphor for the whole self; therapy with 'no-body' is impossible" (p. 127).

Consideration of the mind-body relationship in psychotherapy was first introduced and popularised by Wilhelm Reich (1897-1957) (e.g., Carleton, 2002). Consistent with Fisher and Cleveland's (1958) assumption that the body boundary would embody the sum of all social and behavioural internalisations, as well as representing a container that inhibits the externalization of unacceptable emotions, Reich's (1945) "*Character Analysis*" argued that the contracted musculature and hardened surface of body armour holds repressed instinctive processes, such as emotions and actions. These instinctive processes are perceived to be unacceptable in relation to societal moral expectations and values. According to Reich (1970), the body is comprised of three layers: the first layer relates to the expression of prevalent social values and conventions, such as conscientiousness and politeness; the second layer relates to an individual's unconscious and repressed drives, which are embodied in contracted musculature; and the third layer relates to the biological experiences and processes of the true self (see also Conger, 2005). Given the discrepancy among these layers, Reich (1945) argued that the hard body shell is the representation of these discrepancies, not only within the individual but between the individual and the outer world. The body armour provides a chronic barrier that wards off anxieties that are generated by the conflict between the repressed instinctual processes and the moral demands of the outer world. The resulting lack of awareness, or 'contactlessness', of these repressed instinctual demands is thought to be one of the most important contributing factors in the development of psychological disorders. Through Reich's psychotherapeutic process, the patient is able to trust the expression of repressed instinctual material, reduce the defensive structure, and dissolve the rigid body armour.

Hypotheses

Given that previous research demonstrated that high barrier personalities use semantic content associated with primordial mental activity in the written narration of everyday and dream memories (Cariola, 2015), the first hypothesis (H1) predicted that barrier imagery would correlate positively with semantic content associated with primordial thought, such as group references (i.e., first-person plural pronouns and inclusion words), perceptual process (i.e., seeing, hearing and feeling), and spatial references (i.e., relativity, space and motion), bodily processes (i.e., body, health, sexual and ingestion) and references related to personal concerns (i.e., work, achievement, leisure, home, money, religion and death). barrier imagery would be negatively correlated with semantic content related to conceptual thought, such as self-reference (i.e., first-person singular pronouns), verb forms (i.e., common verbs, auxiliary verbs, present tense, past tense and future tense), affective processes (i.e., positive emotions and negative emotions) and cognitive mechanisms (i.e., insight, causation, discrepancy, tentativeness, certainty, inhibition and exclusion words) in the combined spoken psychotherapy transcripts. Correlations of semantic content consistent with the research

hypotheses would then demonstrate external validity in which an association between barrier imagery and primordial mental activity can be generalised to naturally occurring language behaviour and to experimentally derived autobiographical memories. In relation to body psychotherapy, the statistical relationships between these semantic items and barrier imagery might also be indicative of a patient's increased or reduced bodily armour (Reich, 1946).

Additionally, psychological theory proposes that the internalisation of social and behavioural values, or the lack thereof, influence the development of the body boundary formation (Fisher & Cleveland, 1958; Rogers, 1967). Considering that person-centred therapy aims to support patients to trust and become consciously aware of their organismic experiences and values, the second hypothesis (H2) predicted that progressive psychotherapy sessions would be correlated positively with barrier imagery in low barrier patients but correlate negatively with barrier imagery in high barrier patients. In this sense, this study is based on the assumption that the expression of the true self as well as the formation of the body boundary lies in the middle range rather than the extreme ends on the True- False Self and high-low barrier personality continuums.

Method

Data

Patients' verbal behaviour in psychotherapy transcripts were sourced from the online 'Counselling and Psychotherapy Transcripts' database (2012) which provided the data for this study. According to the accompanying 'Counselling and Psychotherapy Transcripts' handbook (2012), the psychotherapy transcripts were provided by practicing therapists who adhered to the American Psychological Association's Ethics Guidelines, and were selected by an editorial board of distinguished practitioners and academics. The transcript database of the Rogerian person-centred approach to psychotherapy, however, is the most comprehensive because it offers a range of transcripts of individual therapies based on twenty consecutive sessions, with the twentieth session representing the final session. In contrast, the transcripts of the other psychotherapeutic modalities were often provided with only a few consecutive sessions. Out of this context, the transcripts selected for the purpose of this study were based on patients that attended twenty psychotherapeutic sessions.

The psychotherapy transcripts used in this study were based on 12 patients (7 men and 5 women) who attended 20 consecutive once-weekly Rogerian person-centred psychotherapy sessions. The demographic information of the patients, including age range, sexual orientation and marital status, can be seen in Table 1.

Table 1:
Demographics of patients' age range, sexual orientation and marital status

Gender	Age Range			Sexual Orientation		Status		
	11-20	21-30	31-40	Heterosexual	Bi-sexual	Single	Engaged	Married
Male (N = 7)	1	5	1	6	1	6	-	1
Female (N = 5)		4	1	5	-	3	1	1

The 12 person-centred psychotherapy transcripts had a total text length of 1,699,534 words with a mean of 3,836.42 words per psychotherapy transcript (SD = 3,057.79). The therapists' verbal behaviour had a total text length of 358,137 words, with a mean of 1,577.70 words per psychotherapy session transcript (SD = 678.36). The patients' verbal behaviour had a total text length of 1,341,397 words with a mean of 6,210.17 words per psychotherapy session transcript (SD = 2,773.22).

Measures and Analysis

The Body Type Dictionary (BTD) (Wilson, 2006) is a computer-assisted dictionary that calculates the frequency of semantic items categorised as barrier imagery and penetration imagery, based on Fisher and Cleveland's (1956, 1958) scoring system of body boundary awareness (Cariola, 2014a, b). In total, the BTD contains 551 words for barrier imagery, 231 words for penetration imagery, and 70 exception words that prevent the erroneous matching of ambiguous word stems that are assigned to 12 semantic categories (Wilson, 2008).

The Linguistic Word Count Inquiry text analysis program (LIWC) (Pennebaker, Booth, & Francis, 2007) calculates the frequencies of predefined types of semantic content. The LIWC is based on approximately 4,500 words and word stems that are assigned to 80 semantic categories. The LIWC dictionary is hierarchically organised so that one word can be ascribed to different main categories and sub-categories. The semantic categories are based on the following categories: 'Function Words', 'Psychological Processes' and 'Personal Concerns'. Each of these categories has sub-categories. For example, as noted by Tausczik and Pennebaker (2010, pp. 27-28), the 'function words' category includes to the 'articles' sub-category, which is made up of three words (i.e., a, an, the). Grammatically based categories are based on the classification of semantic items that relate to objective grammatical conventions; however, the semantic content of other categories, such as 'emotions', is made of semantic items that rely on the researchers' subjective judgment.

For the computerised content analysis, the BTD and LIWC were applied to the texts using the PROTAN content analysis software program, which measures occurrences of category-based lexical content in texts (Hogenraad et al., 2003). The PROTAN computes the frequency rate, which indicates how many total lexical items match the dictionary categories (Wilson, 2008). The frequency rate used in this study for both linguistic and grammatical variables was based on the following formula:

To contextualize a better understanding of the quantitatively derived results, samples of patient's verbal behaviour were selected randomly to demonstrate the use of semantic content within the psychotherapeutic settings and to assess how the semantic content aligned to existing psychotherapeutic theories and constructs.

Statistical analysis

Initial descriptive statistics regarding the frequencies of barrier imagery revealed that the first sessions of the psychotherapy transcripts had a mean 1.72 of and a median of 1.69 (SD = .66). By drawing on the methodology applied by Fisher and Cleveland (1958), the median value of 1.69 for the barrier imagery frequency of the first psychotherapy session was used to divide the psychotherapy transcripts into two patient groups that used high and low frequencies of barrier imagery at the beginning of their therapy. Therefore, psychotherapy beginnings with barrier scores less than the median value (< 1.69) were categorised as

'low barrier patients', whereas barrier scores greater than the median value (> 1.69) were categorised as 'high barrier patients'.

After the psychotherapy transcripts were divided into two equal parts, the descriptive statistics showed that the low barrier patients (N = 6) had a mean of 1.13 (SD = .24) and that the high barrier patients (N = 6) had a mean of 2.30 (SD = .29) for the barrier frequencies in the first sessions of the psychotherapy transcripts. As a result of this median division, 6 of the 12 patients were classified as high barrier patients and 6 were classified as low barrier patients. The high barrier patients were 3 men aged 11 to 30 years and 3 women aged 21 to 40 years. The low barrier patients were 4 men aged 21 to 30 years and 2 women aged 21 to 40 years.

A Spearman rank correlation coefficient (Spearman, 1904) was used to explore the strengths of association between barrier imagery and the semantic content of the LIWC in the patients' overall verbal behaviour. The test was also used to explore the strengths of associations between the progression of sessions and barrier imagery in the psychotherapy transcripts of low and high barrier patients.

Results

Consistent with the first hypothesis (H1), the results demonstrated that barrier imagery correlated positively with semantic content associated with primordial mental activity (Tables 2 and 3).

*Table 2: Positive Spearman rank correlation coefficients of positive correlations between barrier imagery and semantic content of the patients' verbal behaviour in the combined psychotherapy transcripts. Notes: * $p < .05$ level, ** $p < .01$ level:*

Linguistic variable	barrier imagery
1 st plural pronouns	.275**
3 rd singular pronouns	.194**
Articles	.396**
Prepositions	.235**
Family	.251**
Anger	.221**
Inhibition	.138*
Inclusion	.191**
Swear words	.182**
Biological processes	.324**
Body	.348**
Health	.202**
Ingestion	.337**
Work	.270**
Leisure	.383**
Home	.519**
Money	.444**
Death	.224**
Relativity	.446**
Motion	.367**
Space	.395**
Time	.223**

*Table 3: Negative Spearman rank correlation coefficients between barrier imagery and semantic content of the patients' verbal behaviour in the combined psychotherapy transcripts. Notes: * $p < .05$ level, ** $p < .01$ level:*

Linguistic variable	barrier imagery
Pronouns	-.278**
1 st singular pronouns	-.226**
Impersonal pronouns	-.356**
Verbs	-.326**
Auxiliary verbs	-.328**
Present tense	-.180**
Negations	-.353**
Affective processes	-.363**
Positive emotions	-.376**
Anxiety	-.179**
Cognitive processes	-.422**
Insight	-.408**
Causation	-.160*
Discrepancy	-.158*
Tentativeness	-.257**
Exclusion	-.241**
Perceptual processes	-.268**
Feeling	-.316**

Group references, such as first-person plural pronouns (e.g., we, us, and our), and inclusion words (e.g., and, with, and include) showed a weak positive association with barrier imagery. The use of collective group references resonates with a lack of self-other differentiation and over-inclusive thinking. In this sense, self-expectations and internal experiences are over-generalised in relation to others, such as the patients' therapist and partners, which can be observed in the following phrases [Patient 3]: "Are we supposed to sit here and just tell anything that comes to my mind?" or "Well we were both more or less elated because we both want to get this problem resolved, so we are quite hopeful".

In contrast, barrier imagery was weakly negatively correlated with personal pronouns (e.g., I, them, and her) and therefore indicated an emphasis on conversational topics that relate to the self rather than others. Particularly, the weak negative correlation between barrier imagery and first-person singular pronouns (e.g., I, me, and mine) implies a reduced self-focus. By drawing on person-centred psychotherapy (Rogers, 1967), a reduced self-focus would be indicative of a blocked interpersonal communication, or so-called defence mechanism of denial, in which patients are unaware of their feelings. Here, conversations maintain a superficial tone, referred to as phatic conversations (Malinowski, 1972), and contain a restricted level of self-disclosure by focusing on objects and, in relation to the psychotherapeutic context, problems that are non-immediate and external to the self (Rogers, 1961). An increased self-focus emphasises internal mental processes that relate to affective and cognitive states and changes, whereas an increased usage of group-references and non-immediate others associated with barrier imagery, relate to interpersonal material processes (Halliday, 1985). Consistent with this view, there was a weak positive association between barrier imagery and third-person singular pronouns (e.g., she, her, and him), indicating an increased non-immediate, or extended, other-focus related to the patients' exploration of their personal relationships. A high prevalence of third-person singular

pronouns might also represent a staging strategy to regulate their discomfort of being the focus in the conversational situation (McCarthy, 1991) as well as to justify their feelings and concerns. This strategy indicates reduced personal responsibility and dissociation from statement ownership (Hancock et al., 2008) within the psychotherapeutic context, which can be observed in the following example [Patient 6]:

COUNSELOR: “*And that leads you to be very - well you said skeptical - I guess also leery about what’s going to happen here*”.

PATIENT: “*Well yeah well part of my experiences comes with working as a counselor with myself. Which I am doing now. And I am working in state and in hospitals and so forth. And realizing that these guys that I am working with are you know my superiors. Do not know me. Or know every little. And like just the resident psychiatrist I went to last year I knew damn well I knew more about physiology or just about people than he did. He did not - he would give me back the next week what I had tried to tell him the week before completely reversed. Completely ignoring what I had meant. And just I guess being basically insensitive. Which just makes me feel like I am not getting ahead of things just unwinding. Not exactly or continuing my therapy*”.

Person-centred psychotherapy assumes that psychological disturbances are acquired through the process of familial and social introjects that are incongruent with the values and experiences of the phenomenological self. This process precedes the embodiment of these values within the body boundary (Fisher & Cleveland, 1958). Therefore, a weak positive association between barrier imagery and family-related references (e.g., daughter, husband, and aunt) highlights the inflated focus on family related themes, as demonstrated in the following patient’s statement [Patient 11]:

“*Because I was already invited by Jodie’s mother over to dinner. See, it was almost like - and I sat down and thought about, tried to think about that, too. And, I was thinking...because I felt this before, that my mother might have rejected me, like my mother did not really care. You know I think I told you that last week*”.

Barrier imagery correlated moderately positively with home references (e.g., apartment, kitchen, and house), which mirrors a focus on the immediate and intimate social environment and indicates an emphasis of container-schematic precepts — e.g., [Patient 110]: “*And, I guess what happened was, some kids had rung this old lady’s doorbell, so she had come up from the basement to answer the door, and her husband had seen the kids running away from the door, and so he knew who they were and so he told her, and she came over and told my neighbour. And, the neighbour got all mad, and she was sitting there yelling at two of her own kids and one of the people across the street’s kids, and she screamed at him about, oh, maybe she sent him home*”.

A weak to moderate positive correlation between barrier imagery and references to personal concerns, including work (e.g., job, majors, and Xerox) and money (e.g., audit, cash, and owe) relates to a materialistic and achievement orientated focus, e.g., [Patient 124] “*I - although I enjoy sort of basking in the accomplishments - well, based on when I go back home. Like, I have spoken quite a few times to my - well, the old high school keeps inviting me back. I was the first graduate in class*”, and in relation to monetary references, “*So, I remember I went out and I bought her something from K.M. Hightower’s...like I spent like a whole part-time pay check, which is like 15 bucks. It’s, well...but I mean it was still a substantial amount for just like a small housewarming gift for somebody who is not even a relative or really that close*”. This materialistic and goal-orientated focus could possibly relate to being socially positively evaluated by others based on superficial values rather than on personal inter-personal qualities. Conversely, a weak positive correlation between barrier imagery

and leisure words (e.g., cook, chat, and movie) is consistent with the creative expression and unstructured behaviour associated with primordial mental activity — e.g., [Patient 2] “*So, I read his psychology book. However, he does not because I do not do it that much. I am not interested in that much, you know. I like to read, but I like to read novels historical novels, and he does not*”.

As expected, barrier imagery was weakly to moderately negatively associated with affective processes (e.g., happy, cried, and abandon), including positive emotion (e.g., love, nice, and sweet) and anxiety words (e.g., worried, fearful, and nervous) that are related to the reduced conscious awareness of both positive and anxiety-related emotional experiences and the communication to the therapist. Although a heightened primordial mental activity typically relates to reduced affective processes, barrier imagery showed a significant weak positive correlation with anger words (e.g., hate, kill, and annoyed) and swear words (e.g., damn, piss, and fuck), which indicate an emphasis of anger-related experiences associated with a body boundary finiteness within the psychotherapeutic context. These anger emotions can be directed towards the self in the form of references related to self-harming, e.g., [Patient 6]: “*And, you know, it was like really stupid, but it was like about the third night within the last week that I woke up and wanted to cut myself, which is just really. Like I before that had gone through a fantastically long time*”, or the feeling of anger in relation to others, e.g., [Patient 27]: “*Well, I think to be worried about that is, it makes sense to me because I just I feel like if you are angry and you are angry while somebody is saying something to you, you ought to be able to tell them you are angry or express it or say something or do something*”.

According to Rayner (1995), aggression involves the actual or simulated activation of muscular movements associated with primordial mental activity to bring about a negation and separation as well as a reaction of perceived threats and a self-preservation function. Considering that high barrier individuals introjected their parental social and behavioural values, such as the socially unacceptable expression of rage and anger (Fisher & Cleveland, 1958), the expression of anger within the therapeutic context would facilitate an essential cathexis to explore interpersonally distressing experiences that result in a gradual resistance to maladaptive parental and social introjects (Fenichel, 1945; Freud, 1905). A resistance may be then perceived as an adaptive manifestation of the patient embodying an agent of change (Coghlan, 1993; Nevis, 1987) in which the patient would resist the learned masochistic submission to parental demands as a means to avoid interpersonal rejection, as well as the harsh criticism of the internalised sadistic parental super-ego (Freud, 1923).

Given that the inhibited expression of anger-related emotions has been associated with the stiffening of the body musculature in high barrier personalities (Fisher and Cleveland, 1958), the positive correlation between barrier imagery and aggression words might represent a psychotherapeutic feature of the previously repressed anger and the loosening of the conditioned punishment-reward behaviour to avoid socially rejecting and disapproving social judgment (Pennebaker, 1989; Pennebaker & Beall, 1986; Traue & Pennebaker, 1993). Accordingly, there was also a significant positive correlation between barrier imagery and inhibition words (e.g., block, constrain, and stop), which might be related to the inhibited expression of high barrier patients’ thoughts and feelings. In contrast, the weak negative correlations between barrier imagery and verbs (e.g., walk, went, and see), including auxiliary verbs (e.g., am, will, and have) and present tense verbs (e.g., is, does, and hear) indicates a reduced reality-based behaviour and now-and-here concern associated with primordial mental activity (Robbins, 2011).

Barrier imagery also showed a weak positive association with death-related references (e.g., bury, coffin, and kill), such as self-directed aggressive behaviour in the form of suicidal ideation, e.g., [Patient 6]: “*Well, when I tried to kill myself about two years ago or whenever it happened, and I saw*

a psychiatrist where I was when I got out of the hospital". Given the relationship between destruction and anger, as noted in the psychoanalytic literature (see Hurvich, 2003), the use of anger words and destructive death-related references might also be indicative of the presence of annihilation anxieties, such as through the use of death-thematic fantasies, e.g., [Patient 32] "I cannot conceive of it, and yet, personally — if everyone I knew now died, I think my life would be completely different because I would not have any expectations to live up to their expectations". Particularly, and consistent with Fisher and Cleveland's (1958) observation, Bowlby (1980) conceptualised death-related fantasies to represent patients' unconscious revenge and desire to hurt their parents. Such revenge would be motivated by parental rejection of the patients' authentic self.

Similar to affective processes, cognitive processes (e.g., cause, know, and ought), including insight words (e.g., think, know, and consider), causation words (e.g., because, effect, and hence), discrepancy words (e.g., should, would, and could), tentativeness words (e.g., maybe, perhaps, and guess) and exclusion words (e.g., but, without, and exclude), and negations (e.g., no, not, and never) were weakly to moderately negatively correlated with barrier imagery. Specifically, the reduced use of insight words, tentativeness and causation words indicate a lower presence of self-reflection and the sense-making processes of the content that is being explored within the therapeutic context. Similarly, low frequencies of discrepancy words and exclusion words indicate a reduced presence of complex cognitive processes to produce accurate accounts of experiences and insights. To some extent, the reduced usage of semantic content that is classified to measure cognitive processes may indicate a lowered neurotic defence mechanism of intellectualisation in which patients would avoid unconscious conflicts through the process of reasoning and logic (Freud, 1936).

Furthermore, barrier imagery was weakly to moderately positively correlated with biological processes (e.g., eat, blood, and pain), including references related to the body (e.g., cheek, hands, and spit), health (e.g., clinic, flu, and pill) and ingestion (e.g., dish, eat, and pizza), e.g., [Patient 3]: "She would be sleeping (Body) and wake (Body) up the next morning, I am dead tired (Health) because I laid there and worried all night about something I really did not need to be worried about. I used to chew (Ingestion) my finger nails (Body) clear back to the quick ...". The moderate to strong positive correlations with relativity (e.g., area, bend, and exit), including references related to motion (e.g., arrive, car, and go), space (e.g., down, in, and thin) and time (e.g., end, until, and season), as well as prepositions (e.g., to, with, and above), further reflect the psychosomatic characteristic and somatosensory impressions associated with primordial functioning (Robbins, 2011) — e.g., [Patient 124]: "How will I interact now (Time)? Why should I have done that? Why should not I have just come (Motion) in (Space) here and be honest? I hope I am being honest. However, just the thought that...". barrier imagery was also moderately positively associated with articles (e.g., a, an, and the), which correspond to the tendency of objectification, which reflects the concreteness in primordial mental activity (Bucci, 1997; Loewald, 1978; Mergenthaler & Bucci, 1993) and a heightened focus on surface-defining objects — e.g., [Patient 11]: "Not that I care about the fellow. It is just the point of the thing".

Conversely, barrier imagery was weakly negatively correlated with perceptual processes (e.g., observing, heard, and feeling), including feeling words (e.g., feels and touch), indicating a reduced receptivity to environmental sensory stimuli and lowered sensitivity of the external skin body boundary in spoken therapeutic discourses compared to written autobiographical memories (Cariola, 2015). This low activation of perceptual processes typically relates to conceptual thought (Robbins, 2011). Based on cognitive psychology, a deflation of sensory processes has also been identified as a marker of memory inaccuracies (Hernandez-Fernaud & Alonso-Quecuty, 1997;

Johnson et al., 1980; Schooler, et al., 1986). Within the therapeutic context, a reduction of perceptual processes might relate to discursive themes that are based on patients' fuzzy memory representations of their inter- and intra-psycho experiences that form part of their personal truths (Brainerd & Kingma, 1984; Reyna & Brainerd, 1998; Spence, 1982). A reduction of perceptual process is also consistent with the Rogerian (1961) assumption that individuals would defensively exclude insights that are inconsistent with their internalised value systems. Lower frequencies of perceptual process in heightened barrier awareness would then indicate patients' dysfunctional ability to acknowledge their internal and external reality, as well as their lowered ability to understand their own or others' implicit or explicit mental states. This decreased ability indicates a limited capacity to engage in self-reflective and mentalisation processes (Fonagy & Target, 1996).

Strengths of association between psychotherapy sessions and semantic content

A Spearman rank correlation coefficient showed that in high barrier patients, progressive sessions were weakly negatively correlated with barrier imagery, $r = -.216$, $p < .05$, but progressive sessions were not significantly correlated with barrier imagery in low barrier patients, $p > .05$. Therefore, the second hypothesis (H2) was only partly confirmed.

The reduction of barrier imagery in high barrier patients suggests that a supportive therapeutic environment that enables patients with previously heightened body boundary finiteness to clarify their parental and social introjects that were incongruent with the phenomenological self. The empathic and non-judgmental therapist allows patients to explore and reflect on their emotions and thoughts, including frustrations and traumatic experiences. This factor results in the lowering of the encapsulating body boundary. Particularly, the absence of punishing interpersonal judgment would result in the reduction of muscular sensitivity associated with a socially conditioned punishment-reward response (Fisher & Cleveland, 1958).

Given that body boundaries develop as a response to the internalisation of social values that are to some extent inconsistent with the patients' phenomenological self (Fisher & Cleveland, 1958), the nurturing and empathic environment of the person-centred therapeutic environment would encourage functional forms of self- and other-relating, as well as facilitating the patient to formulate values and behavioural responses that are congruent with the needs of their phenomenological self. A reduced body boundary embodies a functional self-other differentiation that might enable patients to acknowledge their feelings and rely on their own judgments and values, in addition to a greater capacity to trust others and to engage with their experiences. This functional body boundary would further allow patients to fulfil the potentials of their whole self.

Discussion and Limitations

The results of this study confirmed some of the research hypotheses. Consistent with the first hypothesis (H1), barrier imagery positively correlated consistently with semantic content associated with primordial mental activity, such as group-references, biological processes, relativity and personal concerns. barrier imagery correlated negatively with semantic content associated with primordial thought, such as self-references, verbs, cognitive and affective processes. Because the correlations of barrier imagery in relation to the patients' verbal behaviour were consistent with the semantic tendency of the written narratives of everyday memories (Cariola, 2015), the results indicate an external validity of the semantic behaviour associated with barrier imagery. Therefore, the relationship between body boundary finiteness and semantic tendencies can be generalised to, both elicited written autobiographical memories, and naturally occurring psychotherapy-based language behaviour. Conversely, barrier imagery correlated positively with anger words,

which are typically associated with conceptual thought (Cariola, 2015). Given that the body boundary is assumed to represent a container of unexpressed anger and negative emotions (Fisher & Cleveland, 1958), such an inflation of anger words in relation to body boundaries might provide some evidence of the patients' frustrations of internalised parental values that constitute a thickening of the body boundary. The person-centred therapeutic approach would then represent a process in which the patient can express their anger and frustrations within a safe environment.

The results also demonstrated that barrier imagery was reduced in high barrier patients and that barrier imagery did not increase in low barrier patients (H2). This change in barrier imagery suggests that the empathic and unconditional acceptance of the therapeutic relationship in person-centred interventions enable patients to explore their emotions and insights in addition to ridding themselves of inauthentic values that are not congruent with the phenomenological self or their personality predispositions. This psychotherapeutic process resulted in changes of body boundary finiteness.

Summary

The results provided some confirmation of the research premise that person-centred psychotherapy would clarify patients' social value systems and behavioural expectations that are embodied in the increased body boundary finiteness. In relation to Reich's (1945) concept of body armour, the results of this study indicated that individuals with a harder body shell tend to differ in their semantic expression from patients with a softer body shell. In this sense, the use of linguistic features may enable therapists to differentiate between patients with hard and soft body armours, and changes in linguistic features may indicate defensive mechanisms that are associated with the hard body shell being dissolved through the psychotherapeutic process.

Future research should also explore the relationship between patients' and therapists' verbal behaviour. One of the most important premises of the person-centred approach for a successful personality change is based on the functional therapeutic alliance that is characterised by empathy, unconditional positive regard and congruence (Rogers, 1951, 1961). In the role of an active and empathic listener, the therapist concentrates attention towards the patient and conveys in her or his mode of communication, such as the content and tone of voice as well as facial expressions and gestures, a cooperative and helpful attitude by understanding the patients' feelings (Fitzgerald & Leudar, 2010; Rogers, 1957).

Despite the theoretically grounded decisions that determined the methodological and statistical approaches, this study presented some methodological limitations, such as the effect size and sample selection. The notion of effect size represents a statistical weakness that impinges on the reliability of the results and the validity of their interpretation. Thus, the effect sizes used to explore the semantic differences between barrier personalities were often only small to medium, irrespective of the high levels of statistical significance. In this sense, the small effect sizes identified in this study highlight the importance of effect size values as statistical measure to assess differences between the experimental and null hypotheses (e.g., Gigerenzer, 2004; Michalczyk & Lewis, 1980). low effect sizes, however, represent an inherent and general problem in content analysis research and are thus not unique to the study.

Another weakness of the study is related to the data sample selection. The text samples used in these studies were to some extent opportunistic; for example, the online 'Counseling and Psychotherapy Transcripts, Client Narratives, and Reference Works' database (2012) happens to contain a comprehensive set of person-centred psychotherapy transcripts. Thus, future studies should explore the behaviour of body boundary imagery and other semantic content in a wider

range of psychotherapy modalities, such as body psychotherapy, psychodynamic therapies, and gestalt psychotherapy, to mention a few. By investigating a wider range of modalities, the extent to which changes in body boundary awareness and semantic content might be more broadly generalisable. Given that this study is based on person-centred psychotherapy transcripts, the results of these studies cannot indicate the extent to which changes in verbal behaviours might be attributed to the patients' attendance to body psychotherapy sessions, but rather to the Rogerian modality.

Conclusion

As shown in this study, patients with high body boundaries would benefit from the psychotherapeutic encounter to explore their authentic emotions and internal processes, whereas patients with low body boundaries might be able to internalize the supportive structures that are offered in the psychotherapeutic setting and thus to establish better forms of self -and other-relating. For example, high barrier patients would use more words that enable them to communicate their emotions and thoughts to the environment that are congruent with the phenomenological experience of the true self. In contrast, low barrier patients would use gradually more social references reflecting their increase sense of self-worth and a greater trust to engage in social interactions that are not a threat to the self but are perceived as reasonable caring social relations. Although this study theoretically aligns Fisher and Cleveland's (1958) body boundary concept with Reich's (1945) body armour, future studies should assess the relationship between body boundaries as measured using the BTB and the presence of bodily armour as assessed through body psychotherapy. A positive identification between these personality concepts would then also enable body psychotherapists to apply Fisher and Cleveland's (1958) body boundary concept as a diagnostic tool and a measure of therapeutic outcomes.

BIOGRAPHY

Laura A. Cariola is a PhD student in Linguistics at Lancaster University. Her research explores psychodynamic concepts of language behaviour, with specific reference to primordial thought and body boundaries by focussing on the quantitative and qualitative content of projective test responses, autobiographical memories and therapeutic dialogues. Laura is a faculty member in the Centre for Cyber Security and Information Systems at Cranfield University, Defence Academy of the United Kingdom.

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Interoception: A Measure of Embodiment or Attention? Nitasha Buldeo, MS, MSc University of Northampton, Department of Psychology

Received 1 September, 2014; Accepted 3 January, 2015

Abstract

Interoception provides a link for the affective and cognitive mechanisms of embodiment. fMRI studies suggest that brain areas known to mediate selective attention, are also relevant for interoceptive awareness (IA). Yet the relationship between attention, embodiment and interoception is poorly understood. This study attempts to understand this relationship by considering whether IA is possible when attention is compromised. Using two versions of an IA task, the standard mental tracking task (MMT) and a modified version of the same task, the IA of 20 healthy participants (9 female, 11 male) was measured. A significant difference in mean IA was shown between the tasks with the modified mental tracking task (MMTT) showing greater sensitivity. These findings suggest that IA is possible even when attention is compromised which supports somatic theories such as the somatic marker hypothesis. Most importantly this implies that IA may be a good measure of somatic awareness and may be useful as a measure in body psychotherapy research and clinical practice.

Keywords: Interoception, attention, embodied cognition, measures of embodiment, somatic awareness

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
Volume 14, Number 1 spring 2015 pp 65-79. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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Everything we know begins from feelings”
- Leonardo da Vinci 1452–1519 (Nardini, 1999)

We can all perceive feelings from our body related to its internal and external state and this provides a sense of our physical and physiological condition. These feelings generate the intuitive notion that bodily sensations are intrinsically tied to life, represent relevant signals for survival and well-being, and underlie mood, emotional state, and fundamental cognitive processes (Herbert & Pollatos, 2012).

The perception of feelings in bodily systems, including joints, muscles, skin and viscera is commonly referred to as interoception (Dunn et al., 2010). As a general concept “interoception” includes two forms of perception: proprioception (signals from skin and the musculoskeletal apparatus) and viscerosception (signals from the inner organs) (Herbert & Pollatos, 2012). In a more detailed definition, interoception is described as the collection of processes by which physiological signals in the body are transmitted back to the brain, allowing the organism to regulate the internal state homeostatically and which may also give

rise to awareness of bodily feelings (e.g. pain, touch, temperature) (Cameron, 2001; Verdejo-Garcia, Clark, & Dunn, 2012).

The origin of the term interoception cannot be precisely specified. However the description of the concept of the milieu interieur by Claude Bernard approximately 150 years ago may be a good place to start. Bernard's idea was that there was an identifiable set of physiological parameters that defined the normal internal state of the organism. Although it is now known that most, if not all, of these physiological parameters are not normally static, the theory that there are optimal physiological conditions that vary across organismic circumstances is correct (Cameron, 2001). Implied in Bernard's theory was the idea that the body would seek to maintain these optimal parameters (Gross, 1998). Several decades later, Walter Cannon called this maintenance process – homeostasis (Cannon, 1953). Both milieu interieur and homeostasis imply the existence in the body of mechanisms by which the organism can track the moment-to-moment fluctuations of these physiological parameters. Afferent information travelling from the body to the central nervous system enables the body to holistically control or maintain this homeostatic milieu interieur. The afferent pathways that carry sensory information from the body to the brain facilitates the homeostatic regulation of purely physiological reflexes like breathing and blood pressure. However these afferent pathways may also transfer sources of information about the state and function of the body that could influence higher mental functions (cognition) and behaviour (Cameron, 2001).

In keeping with the above idea, evidence suggests that primates have a distinct cortical image of homeostatic afferent activity that reflects all components of the physiological conditions of all tissues of the body. According to this view, all sensations from the body are represented in the lamina-1-spino-thalamocortical pathway, a phylogenetically new system found in the dorsal horn of the spinal cord, that evolved from the afferent limb of the evolutionarily ancient, hierarchical homeostatic system that maintains the integrity of the body (Craig, 2003, 2009). This view opens up a wider conceptualization of “interoception”, which is: an overall representation of the internal state within the context of on-going activities that is closely associated with conscious or motivated action to homeostatically regulate the internal state (Craig, 2008; Herbert & Pollatos, 2012; Verdejo-Garcia et al., 2012). This highlights the role of homeostasis in what we think of as conscious, deliberate or motivated action. Furthermore interoception implies an ability to distinguish more than the usual exteroceptive perception via the sense organs, as a variety of environmental stimuli such as chemical, barometric or electrical have an effect on the body.

Interoception as a basis of embodied processes

William James (1884) proposed that subjective feelings – the meaning that is attributed to objects and events in the world – arise from the sensory feedback of the visceral responses that are elicited by those objects and events (Reimann & Bechara, 2010). A model of emotion similar to, although more limited than James', was independently proposed by Danish physiologist Carl Lange in the same era (Lange, 1885/1912). The two models are often collectively labelled the 'James-Lange theory of emotion', which supports the premise that physiological responses are causal in emotional experience (i.e., 'feelings'), (Friedman, 2010). Early challenges to the James-Lange position, rested on beliefs that autonomic outflow was insufficiently differentiated to enable emotion-specific response patterns (Cannon, 1931).

Demonstration that both sympathetic (Janig, 2008; Morrison, 2001) and parasympathetic (Porges, 2007) nervous systems possess exquisite organ-specific regulation has countered this argument and contributed to a revival of somatic theories (Damasio, 1994; Harrison, Gray, Gianaros, & Critchley, 2010).

There has, however, been considerable debate about the extent to which feelings and cognitions are in fact embodied. Much of this debate has focused on emotional experience and decision-making. For example, the James-Lange theory was modified to argue that emotional experience is a product of the cognitive appraisal of bodily arousal (Schachter & Singer, 1962). While in the somatic marker hypothesis (SMH) (Damasio, 1996; Damasio, Tranel, & Damasio, 1991); Damasio (1994) argues that the sensory mapping of visceral responses not only contributes to feelings, but that this mapping is also important for the execution of highly complex, goal-oriented behaviours. In this view, visceral responses function to “mark” potential choices as being advantageous or disadvantageous. This process aids in decision-making in which there is a need to weigh positive and negative outcomes that may not be predicted decisively through “cold” rationality alone. Both the James-Lange view and the SMH hold that the brain must contain a system that translates the sensory properties of external stimuli into changes in the visceral state that reflect their biological relevance. The SMH argues that this is the essential function of the ventromedial prefrontal cortex—a function that ties control of the visceral state to decision-making and affect (Reimann & Bechara, 2010). These models still remain controversial though, with critics arguing that bodily responses occur relatively late in the information-processing chain, and are therefore best viewed as a consequence, rather than the cause of cognitive-affective activity (Dunn et al., 2010; Moors, 2009).

However, recent neuroanatomic evidence of an “interoceptive neural network” in the brain comprising the somatosensory and somatomotor cortices, the insular cortex, cingulate cortex (ACC), and prefrontal cortices (ventromedial prefrontal cortex, dorsolateral prefrontal cortex) show support for somatic theories. These structures are relevant for monitoring the internal emotional and viscerosensory state (Critchley, Corfield, Chandler, Mathais, and Dolan, 2000) for emotion processing and reactivity (Phan, 2002), for the feeling of self-generated and externally induced emotions (Anders, 2004), and the self-regulation of feelings and behavior (Beauregard, 2001; Bechara, 2004).

Within the interoceptive network the insula represents a convergence site of viscerosensory input from different modalities of the body. It is suggested that different portions of the insula are involved in different and successive steps of neural processing. Hence the insula is central to the sequential integration of the body's primary homeostatic condition with behavioral, cognitive and sensory processes. Raw interoceptive signals such as those coming from visceral changes, first project to the posterior insula, and become progressively integrated with contextual motivational and pleasure producing information as they progress toward the anterior insula. The neural constructs of the distinct, individually mapped sensations in the posterior insular cortex are then re-represented in the mid-insula that integrates the homeostatic re-representations with activity associated with emotionally salient environmental stimuli of many sensory modalities from different parts of the brain (Herbert & Pollatos, 2012).

This results in a “global emotional moment” in the anterior insula that represents the ultimate representation of all one's feelings, thereby constituting the “sentient self”, in the immediate present moment (Herbert & Pollatos, 2012). This may also define the embodied

experience. The anterior insula cortex provides a unique neural substrate that instantiates all subjective feelings from the body and feelings of emotion at a certain moment in time (Craig, 2009). This supports the proposition that both subjective awareness and embodied cognition is built on homeostasis. Therefore the neuroanatomic basis of interoception (which may be considered as the awareness of homeostasis) provides a link for the “body’s role in creating the mind” as well as the affective and cognitive mechanisms of embodiment (Herbert & Pollatos, 2012). This process may provide the physiological correlate of what has been defined as a “felt sense” (Gendlin, 2003) in body psychotherapy practice.

Interoceptive Awareness (IA)

The term “interoceptive awareness” (IA) is used to define the conscious awareness of interoception (H. D. Critchley, Wiens, Rotshtein, Ohman, & Dolan, 2004). Tests to measure individual IA require participants to focus, or selectively attend to, a particular physiological sensation and either count (mentally track), or discriminate the sensation from other stimuli. IA may therefore be a primary component of body psychotherapy practice as it may enable the therapist to determine the client’s level of body awareness as described by both Aposhyan and Gendlin (Aposhyan, 2004; Gendlin, 2003).

Heart Beat Perception (HBP)

Heart beat perception (HBP) is the most frequently used IA measure (Dunn et al., 2010). HBP relies on individual sensitivity for cardiac signals (“cardiac awareness”) (Jones, 1994; Wildmann, 1982). There are two main HBP methods (Dunn et al., 2010) “tone detection procedures” (TDP), a discrimination task (J. Brener, Liu, X., Ring, C., 1993; Whitehead, 1981) and the “mental tracking task” (MTT), a tracking or counting task (Schandry, 1981). In both these tasks participants are instructed to focus on or selectively attend to their own heartbeats without feeling for their pulse. These tests allow the calculation of individual heartbeat perception scores that characterize the deviation of the subjectively felt cardiac signal from the objective, “true” cardiac signal obtained from a physiological heart rate monitoring device. In TDP participants have to attend to their heartbeats and discriminate their heartbeat from an exogenously presented auditory tone. While in the MTT participants are required to attend to, and count their heartbeats (subjective measure) for a random time interval, with their heart rate also being monitored electronically (objective measure) (Schandry, 1981).

Both of these methods are susceptible to numerous confounds as reported by many who have used them. The TDP method is not a particularly sensitive measure of individual differences (Dunn et al., 2010). A large proportion of participants using this method perform at chance levels, with relatively low rates (40-50% classified as perceivers) of detection (Eichler, 1994; Knapp-Kline, 2005). The MTT method, first described by Schandry (Schandry, 1981) is the most frequently used HBP test. This is because the MTT has a higher effect size and greater sensitivity. However this may be due to the use of cognitive strategies. Participants may complete the task by counting time and using this to estimate a plausible number of heartbeats based on their underlying beliefs about how fast the heart works (Brener, Knapp, and Ring, 1995). Also, because participants are asked to attend to their heartbeats, individual attentional abilities also have an effect on heart beat perception. This combination of attentional and cognitive processes may confound IA as determined by the MTT. To overcome the confounding effects of cognitive processes, randomised time intervals

and repeated measures are used with practice trials interspersed between actual trials in each set of MTT tasks. However the confounding effect of attentional ability is more difficult to overcome. Furthermore, neuroimaging studies suggest a strong correlation in cortical areas found to underlie both IA (awareness of internal body states) and selective attention (SA) (the act of focusing on a particular object while ignoring other irrelevant stimuli). Critchley et al., (2004) and Matthias, Schandry, Duschek, & Pollatos, (2009), also found significantly better performance in SA and divided attention (DA) tasks for participants with high IA (measured using MTT).

It is difficult to determine if good attention processing facilitates better IA, or if IA is unhampered by attention, as the causal relationship between attention and interoception is poorly understood. To better understand this relationship, this study aimed to answer the question, “is IA possible when selective attention is compromised?” This has implications for somatic psychotherapy both clinically and theoretically, as it is important to determine if body awareness of unconscious stimuli is possible even when a person is fully engaged in another task.

Method

Participants

An opportunity sample of 20 right-handed individuals between the ages of 18 to 60 (9 female, 11 male) completed this study, however 8 (4 female, 4 male) participants were excluded from analysis. Outliers were excluded to maintain homogeneity of the data. Individuals with learning, communication or uncorrected visual difficulties as well as individuals with a diagnosis of diabetes mellitus, tachycardia, hypertension or peripheral vascular disease were excluded from participation. Full details of the procedure are available in Appendix 1.

Interoceptive Awareness (IA)

Research on both the cardiovascular system (Critchley et al., 2004; Herbert, Pollatos, & Schandry, 2007; Schandry, 1981) and the gastrointestinal system (Stephan et al., 2003) highlights significant inter-individual differences in IA (Herbert & Pollatos, 2012). To remove these individual or between-participants differences as a potential extraneous variable, this study used a repeated measures (within-group) experimental design.

IA (the dependent variable (DV) was measured using two versions of a heartbeat perception (HBP) task, the standard Mental Tracking Task (MTT) (experimental condition 1) as described by Schandry (1981) vs. a modified version of the same test i.e. MMTT (experimental condition 2). In order to counterbalance the effects of fatigue, the order of the two independent variables (MMT and MMTT) were reversed in half of the participants.

MTT

The mental tracking task (MTT), which was first described by Schandry (Schandry, 1981) is a well-validated heartbeat detection task and was found to be more sensitive to individual differences than tone detection alternatives (Dunn et al., 2010; Ehlers & Breuer, 1992; Knoll & Hodapp, 1992).

In this study the MTT was tested using three time intervals of 25, 35, 40 seconds. All counting periods followed standard resting periods (20 s). There were three blocks of four trials each making up 12 trials and four practice trials (two before the first block and one each before the second and third block). The time intervals were pseudo-randomized in all four blocks. During all trials ECG was recorded using the Biopac version 2.7.2 as described above. Prior to commencing with the MTT participants were given the following instructions (Figure 1).

Figure 1: Instructions for MTT and MMTT

In the following set of tasks you will be required to count your heartbeats. You would need to pay attention to your body and count your heartbeats. You CAN NOT TAKE YOUR PULSE.

Please sit in a comfortable position with your right wrist placed on the white block below the keypad. This will facilitate easy access to the keys and mouse so you may enter your responses.

All instructions for this task will be displayed on the screen. Following this instruction screen there will be 4 screens.

The first of these 4 will require you to ready yourself. As soon as you are ready to commence, please click Enter to start the task.

Once started there will be a brief pause, followed by a GO screen.

When you see this screen you need to start counting your heartbeats as specified above. You will stop counting as soon as you see the STOP screen.

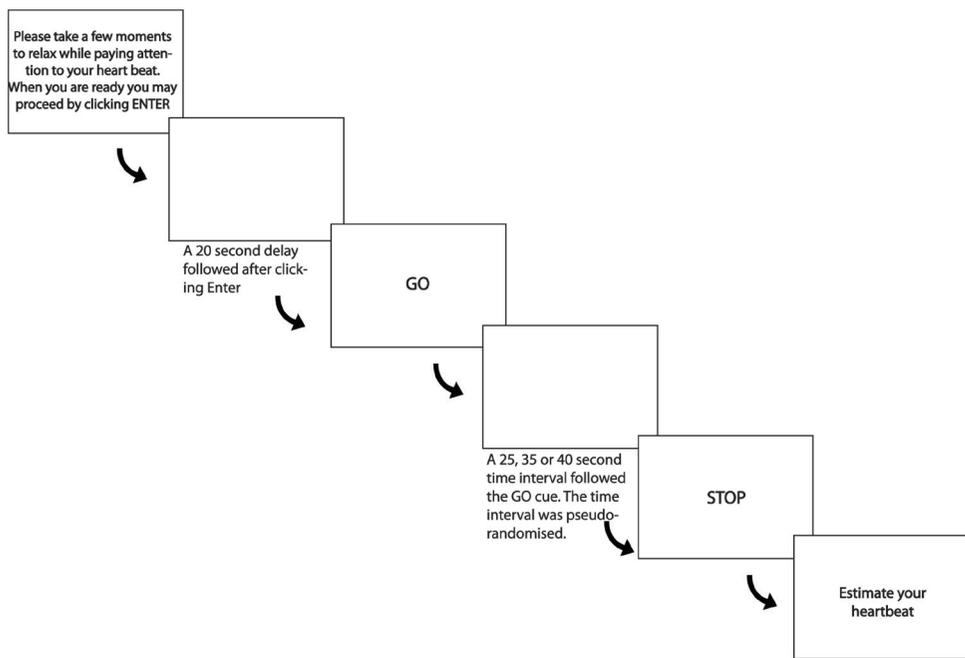
You will then be asked to enter the number of heartbeats that you counted/estimated using the numerical keys.

After you have entered this, you will commence the next task in this sequence. You need to follow the same procedure for all the tasks in this part of the experiment.

You will have a practice run first.

Please press the ENTER key to the right of the keypad when you are ready to proceed.

Figure 2: Mental Tracking Task (MTT) Flow Diagram

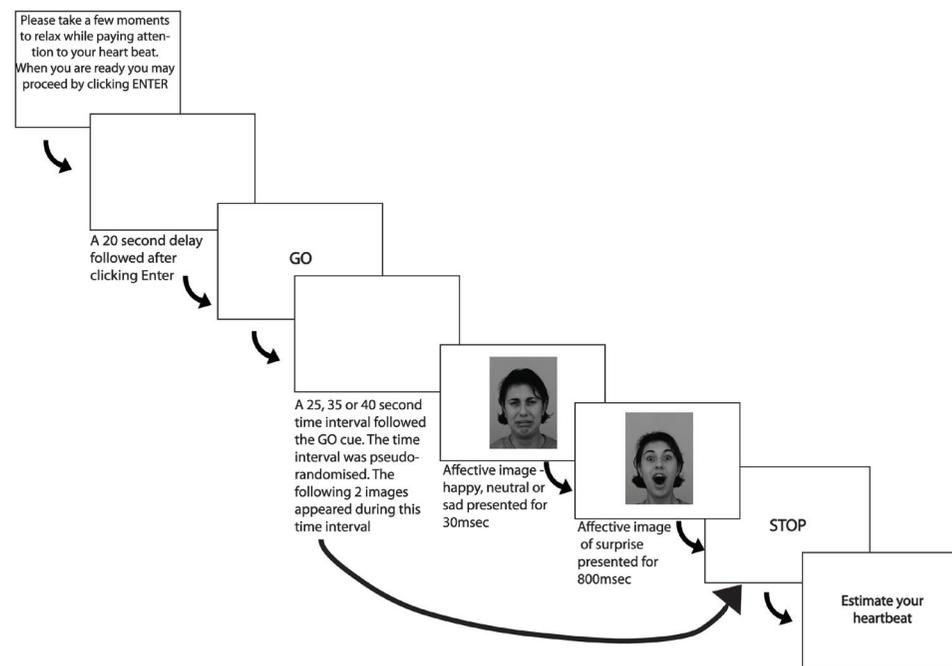


As depicted in Figure 2 above, participants were asked to press enter when ready and then to count their own heartbeats on seeing a “go” cue and to stop counting on seeing a “stop” cue, both presented on the monitor. Participants were not permitted to take their pulse or to attempt any other manipulations that could facilitate the detection of heartbeats. Following the stop signals, participants had to enter the number of heartbeats counted using numerical keys via the keypad. If the “go” or “stop” cue was missed or the participant was unable to count heartbeats for any reason, 00 could be entered. This denoted a false trial during analysis. Participants were not informed about the length of the counting phase nor about the quality of their performance at any time during the procedure.

Modified MTT (MMTT)

MMTT was similar in all respects to the MTT above, including the instructions (Figure 3), time intervals, and procedure. The only difference was the addition of affective images as depicted in Figure 3.

Figure 3: Modified Mental Tracking Task (MMTT) Flow Diagram



The “go” cue was followed by the presentation of two affective facial images (Karolinska Facial Images) on the monitor. The first affective image (happy, sad or neutral) was presented for 30 msec and the second surprised facial image for 800 msec. This was done in order to distract the participants while they were counting their heartbeats.

Interoceptive awareness (IA) was calculated using a formula previously employed by Herbert et.al. (2012). A heartbeat perception score was calculated as the mean score across the three heartbeat perception intervals according to the following transformation:

- $1/n(1-(\text{recorded heartbeats}-\text{counted heartbeats})/\text{recorded heartbeats})$
- n is the number of successfully completed heartbeat perception trials.

A trial was considered successful if the participant entered a number other than 00. Participants had to have completed more than 10 trials successfully to be included in the analysis. The maximum number of trials was 12.

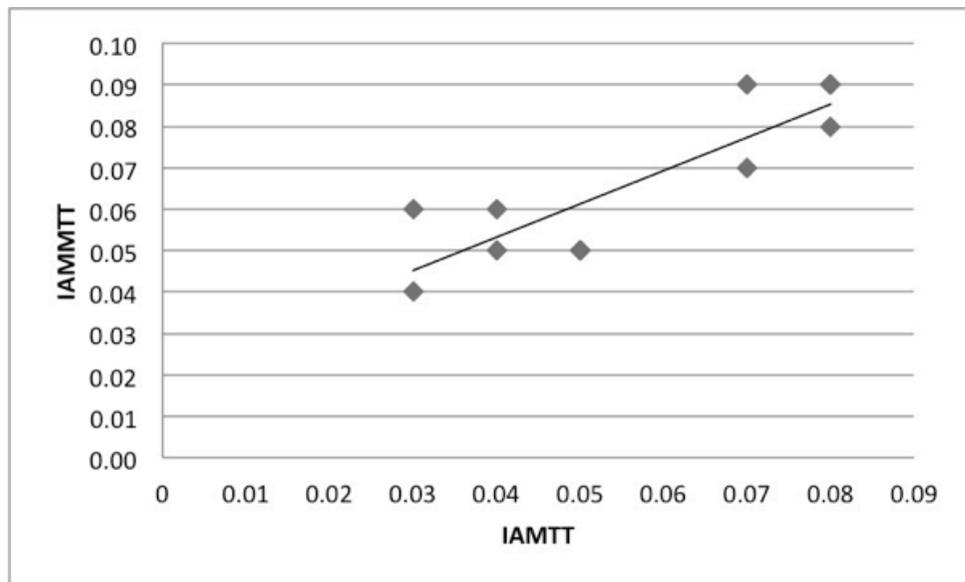
The heartbeat perception score varies between 0 and 1. The maximum score of 1 indicates absolute accuracy of heartbeat perception. IA was estimated as the mean heartbeat perception score (Herbert et al., 2012).

Results

Alpha was set at 0.05 and a paired t-test was used to examine the difference between the mean IA scores measured on MTT and MMTT. Confidence interval was set at 95%. Mean IA measured on MTT (n=11) was 0.06 with a standard deviation (SD) of 0.0201 and standard error of mean (SEM) of 0.006. The mean IA on MMTT (n=11) was 0.07, with a SD of 0.019 and SEM of 0.006 (Table 2). The paired two-tailed t-test was statistically significant ($\alpha = 0.05$) ($t(11) = 3.3166$, $p < 0.01$ ($p = 0.0078$)), $df = 10$ and standard error of difference = 0.003.

It was also interesting to note that for all participants IA measured using MMTT was either greater than or equal to (\geq) IA measured on MTT. No participant scored lower on MMTT. Table 1 is a scatterplot depicting the relationship between IAMTT and IAMMTT. A strong positive correlation between IAMTT and IAMMTT ($r=0.870$) was found. The 95% confidence interval for this correlation (r) is 0.564 to 0.965. Effect size (Cohen's d) was calculated ($d=0.516$) using the formula suggested by Cummings (Cumming, 2012).

Table 1: Scatterplot: Relationship between IAMTT and IAMMTT



Discussion

This study demonstrates a difference in mean IA measured via the standard mental tracking task (MMT) and the modified mental tracking task (MMTT) with the mean IA on MMTT being higher. This suggests that interoceptive awareness is possible even when attention is compromised. Phenomena such as attention blink (an observed phenomenon that the second of two targets cannot be detected or identified when it appears close in time to the first) and change blindness (a perceptual phenomenon that occurs when a change in a visual stimulus is introduced and the observer does not notice it) imply that we must pay attention to an object in order to visually experience it and that the contents of consciousness are identical to the contents of attention (Dehaene, Changeux, Naccache, Sackur, & Sergent, 2006; Koivisto, Kainulainen, & Revonsuo, 2009). Contrary to this, the data in this study suggests that it may be possible to be conscious of heart rate even if attention is compromised and this study supports Koch and Tsuchiya's theory that attention and consciousness are two distinct brain processes (Koch & Tsuchiya, 2007).

The implications of these results are valuable for the fields of embodied cognition and somatic psychotherapy for two reasons. Firstly, cognitive scientists tend to use data obtained in visual awareness studies to make assumptions about consciousness and this study gives us reason to question this supposition. While in the case of visual processing, the contents of attention may be identical to the contents of consciousness, this may not be so for other somatic processes. Awareness of sensorial and contrasting emotional experience may be present simultaneously in a patient undergoing somatic psychotherapy.

Secondly this study supports somatic theories such as SMH and others describing intuition or intuitive decision-making. Intuitions are described as "affectively-charged judgments that arise through rapid, non-conscious, and holistic associations." The premise that intuitions are "affectively-charged" is underscored by research suggesting that intuitive processes and judgments are tied to neuro-physiological systems associated with emotion (Damasio, 1994, 2000; Dunn et al., 2010). Intuition may be linked to interoceptive awareness (Dunn et al., 2010) and as suggested by this study may occur by processing visceral information that one is not consciously attending to. This supports the conjecture from body psychotherapy theory that unconscious information may be held in the body and processed within a body psychotherapy setting (Rothschild, 2000).

However a weakness of this study was that participants' divided attention (DA) ability was not established. DA enables a participant to split their attentional resources, and participants may have been able to do this while the distracting images were being presented. In this study all the participant's IA scores on MMTT were either higher than or equal to IA measured on MTT with no participant scoring lower on MMTT. This would suggest that either DA is not involved or that all the participants in this study had good DA ability. As this was a small sample, it is difficult to determine. In future studies the inclusion of a DA task is recommended.

The affective nature of the images could be responsible for mean IA being higher on MMTT. This is because IA accessed by cardiac awareness is related to greater sensitivity to emotional response and cardiovascular autonomic reactivity in different situations evoking autonomic changes (Herbert et al., 2012; Pollatos, Herbert, Matthias, & Schandry, 2007). Affective images are known to evoke emotional responses and autonomic changes, which may explain the effect size of the MMTT. It would therefore be interesting to test MMTT using non-affective distractor images (neutral symbols or numbers).

General Discussion

This study suggests that there is a significant difference in IA measured on the standard MTT and modified version of the test (MMTT) with the modified version appearing to be the more sensitive measure (mean IA on MMTT was higher than mean IA on MTT). As IA is becoming a popular area of study a more sensitive measure would be useful. This is also important for embodiment studies as it would seem that the more accurately individuals can perceive bodily activity, the stronger the relationship between such bodily changes and cognitive-affective processing (Dunn et al., 2010). Hence IA may be a useful objective measure for somatic awareness and to evaluate somatic interventions in research and clinical body psychotherapy practice, as IA may be an objective measure of how somatically aware an individual is.

BIOGRAPHY

Fascinated by the mind-body connection since childhood, Nitasha Buldeo completed a Masters in Health Sciences at the University of Johannesburg, RSA and an MSc. In Transpersonal Psychology and Consciousness Studies at the University of Northampton, UK. She also trained in Hypnotherapy, NLP, Nutrition and dry needling. Her passion for understanding the mind-body has inspired her on-going research.
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APPENDIX 1

The study was conducted in a darkened acoustic isolation room with the only sources of light being the monitor and backlit keyboard. The apparatus set up is described below and in Figure 1. A10009-100 disposable ECG Medical Sensors (1 3/8 inch vinyl disc with 10% Chloride wet gel) were attached to the inner side of both left and right ankles, above the medial malleolus as well as on the inner right wrist at the wrist crease as shown in Figure 2. ECG leads were attached to these as follows: white (VIN-) lead to the right wrist, red (VIN+) lead to the left ankle and black (ground) lead to the right ankle. These were attached to a Biopac MP150, version 2.7.2. system using the ECG 100 module. The corresponding software (AcqKnowledge, version 4.2Biopac (2.4.3) recorded ECG (Electrocardiogram) to determine heartbeats objectively as well as GSR (Galvanic Skin Response), which was not further analysed for this study. Signals were sampled at 500 Hz – settings on Biopac. The ECG 100 is factory set and does not require calibration. Settings on the ECG 100 were as follows: Gain - 500, Output Selection – R Wave Detector Function, Low Pass Filter - 0.5 Hz.

The experiment started with a 10-minute recording period, which enabled the baseline ECG (heart rate) to be assessed. During this period participants were asked to answer a brief questionnaire to determine their level of participation in meditation techniques or sport. Practitioners of either of these may be trained to be more aware of their heart rates and this could result in higher IA scores (Khalsa et al., 2008). The questionnaire took approximately 3 minutes to complete. Once the baseline-recording period was complete, the chair position was adjusted so that the participant's face was approximately 140 cm away from a generic PnP monitor (Resolution 1366 x 768, Landscape, 60 Hz screen refresh

rate, 32 bit True Colour). All instructions and stimuli were presented on the monitor using white serif typeface (Georgia) (font size 16 to 20) on a black background. All images presented were also black and white. No colour was used as this could distract or divert attention (Constantine & Lockwood, 1999; Noiwan & Norcio, 2006). All instructions and stimuli for all parts of the study, were presented on this monitor using Superlab software (Version 4.5).

Superlab software interacted with Biopac via a StimTracker™ device. This enabled the exact presentation time of various stimuli to be recorded by Biopac and the Acknowledge software, and assisted with the analysis of data.

Participants were asked to place their right wrist on a white rectangle (14.8 cm high x 21 cm wide). This was positioned just below the wired numerical keypad (Mad Catz V.5, Backlight Technology by Illuminations Inc.) and a wired mouse (Mikomi, AM-M259) that were used by the participant for data entry. Placing the wrist on the white rectangle ensured that participants moved their hand only to enter data, thereby reducing noise on the ECG. Participants were shown the numerical keys, the enter key and the mouse and it was explained that all instructions would be presented on the monitor. Lights were switched off and the door shut, but participants were aware that the experimenter was outside and that they had to call out if anything was required. The first HBP task then followed. After the four replications of the first HBP task, participants were questioned about cognitive strategies used in the MTT or if they were aware of the distractions in the modified mental tracking task (MMTT). A rest period was then allocated and this was followed by the second HBP task. After the four replications of the second HBP task, participants were asked the second relevant question. A rest period was allocated and this was followed by part two of the study, the cued and un-cued subliminal affective priming task. Once part two was completed participants were asked to alert the experimenter. The Biopac recording device was then switched off. All data was subject to the Data Protection Act (1998). SPSS version 20 for MAC was used to analyse the data.

Figure 1: Apparatus Set-up

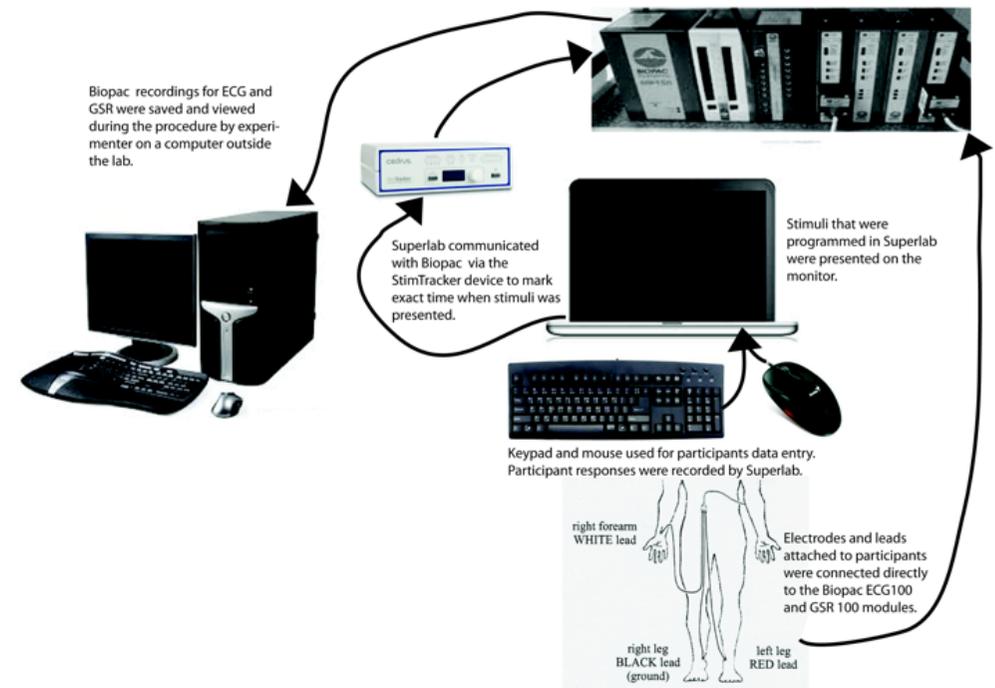
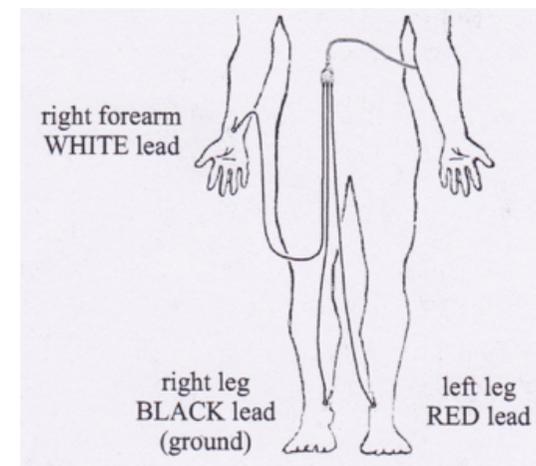


Figure 2: Placement of ECG Electrodes and Leads



Grasping and Transforming the Embodied Experience of Oppression

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Received 7 September, 2014; Accepted 14 December, 2014

Abstract

Research has established the crucial role of the body in navigating experiences of social difference and mediating the traumatic impact of oppression. Although conceptual frameworks from education, counseling, and critical embodiment studies offer powerful lenses through which to view these experiences of oppression, existing social justice models (e.g., anti-oppressive education, multicultural counseling and social work) are insufficiently inclusive of the body's role in navigating oppressive social interactions. Conversely, existing models of working with embodied experience (e.g. somatic education and somatic counseling/psychotherapy) are insufficiently attentive to the role of social power in interpersonal relations. Drawing on current research on the embodied experience of oppression, this paper articulates an integrative model for addressing problematic experiences in relation to the body and social justice.

Keywords: embodiment, oppression, social justice, diversity, anti-oppressive education, multicultural counseling, experiential learning

International Body Psychotherapy Journal *The Art and Science of Somatic Praxis*
Volume 14, Number 1 spring 2015 pp 80-95. ISSN 2169-4745 Printing, ISSN 2168-1279 Online
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This paper introduces an interdisciplinary approach to diversity and anti-oppression work grounded in research and designed for use by social workers, counselors, educators, and other human service professionals. Comprising a conceptual framework and a model of practice, this approach integrates key findings from education, psychology, and embodiment studies while addressing critical gaps in how these fields have understood and responded to issues of social justice. The approach has evolved from my work as a somatic psychotherapist and movement educator, and been informed by the research colleagues and I have conducted into the embodied experience of oppression (Johnson, 2009; Johnson & Caldwell, 2010).

The ideas that form the basis of the approach have existed for many years, as have the practices these ideas have generated. They reach back at least as far as the early American educator John Dewey and the somatic practice developed by his friend and colleague, F.M. Alexander, around the turn of the last century. They span continents and cultures, from the work of Brazilian educational activist Paulo Freire to the French phenomenological philosopher Maurice Merleau Ponty. They straddle intellectual traditions from pragmatism to postmodernism, and practices as diverse as consciousness raising circles and dance improvisation. In developing this approach, I am indebted to the excellence of these ideas and the refinements of practice carefully crafted by so many dedicated practitioners.

While the ideas and practices that serve as the foundation of this approach are not new, their integration is novel. By bringing together a number of different theoretical and practical models, it becomes possible to identify some of the missing pieces that have prevented these approaches from responding as effectively as they might to what is arguably our most pressing and deeply entrenched social issue – the systematic and mostly unconscious oppression we inflict on one another in our simplest everyday interactions. For human services professionals whose intentions are to help rather than harm, it is essential that the embodied dimensions of privilege, discrimination, and marginalization are brought to the surface of our awareness and that we become more skilled at navigating them honestly, respectfully, and with grace.

The approach described in this paper for grasping and transforming the embodied experience of oppression takes as its starting point the assumption that oppression is a social construction; a “system of social inequality through which one group is positioned to dominate and benefit from the exploitation and subordination of another” (Johnson, 2001, p. 20) and that the behaviors we use to enact oppression are mostly learned rather than innate (Freire, 2000). By extension, it should be possible to “unlearn” these relational strategies in order to transform our individual and collective experience of oppression. This micro-sociological perspective does not negate the significance of institutionalized oppression or legislated inequities; rather, it focuses on a mechanism for reproducing oppression that often persists beyond the hard-won changes to laws and social structures, in part because of the relative lack of attention it is given (Weiss, 1999). This inattention colludes with a widespread dismissal of the body as an important source of social knowledge and effectively maintains our everyday embodied interactions as a primary locus for implicit social control.

John Dewey's educational philosophy and David Kolb's cycle of experiential learning serve as a foundation for the model articulated in this paper, while the work of critical educational theorists and multicultural counseling theorists fleshes out a necessary counter-hegemonic perspective. The model also integrates key contributions from somatics, critical embodiment theory, nonverbal communication, and traumatology. This integration of critical analysis and embodied perspectives with an experiential learning model allows the inherent “grasping and transforming”¹ functions of Kolb's widely used and recognized cycle of experiential learning to be applied to a particular kind of experience (oppression) whose embodied dimensions are key to its deconstruction.

This article is structured in two parts: the first articulates a conceptual framework based on the strategic integration of the literature referenced above. The second part of the paper describes the model of practice based on the conceptual framework, and offers examples and suggestions for implementation.

Conceptual Framework

Learning and Unlearning Oppression

Educational theorist John Dewey (1897, 1916) believed that the best learning was grounded in experience, relevant to the issues of learners' lives in the context of their own communities, and fostered their capacity to contribute to society in a free and productive way. Dewey's ideas inform the field of constructionist education, which views learning as a process in which learners actively

¹ In Kolb's cycle, “grasping” refers to ways of understanding experience by feeling and thinking, and “transforming” to reflecting on and experimenting with new options in order to shift or change that experience in some meaningful, intentional way (Kolb, 1984).

construct knowledge from their own experiences. The concepts and principles constructed from these experiences are then applied to the real-world context of the learner, resulting in knowledge that is necessarily mediated by the context of the learning, the social environment, and the prior knowledge of the learner.

Scholars in experiential learning (Boud, 1985; Kolb, 1984) assert that we learn about the world and ourselves in an interactive, ongoing action/reflection cycle. As we encounter new information and experiences, these interactions with the world change our view of ourselves and our relationships to others. From an experiential perspective, learning is a complex, holistic activity that is deeply informed by who learners are, what they already know and believe, and how their life experiences have influenced and affected them.

For many, the life experience of being oppressed and oppressive creates deep and lasting imprints of how to treat (and expect to be treated by) people different from us, and how to negotiate power differentials among groups and individuals. It shapes our identities and our worldviews, and informs our everyday interactions. Working through complex and sometimes subtle intersections of privilege and discrimination, oppression is a life lesson. Given that one of the most important things we learn in hierarchical societies centers on the use (and misuse) of interpersonal and social power, it seems necessary that the educational strategies designed to help us learn from experience address this particular issue.

Encompassing a variety of educational approaches (including feminist, critical, multicultural, queer, postcolonial, and other social justice approaches), anti-oppressive education can be broadly understood as any educational approach that aims to challenge multiple forms of oppression (Kumashiro, 2000). Anti-oppressive educators argue that learning is fundamental to overcoming circumstances of entrenched social oppression (Freire, 2000; hooks, 2014), and that education is never politically neutral.

Paulo Freire's *Pedagogy of the Oppressed* (2000) is foundational to understanding an anti-oppressive education perspective. Like Dewey, Freire believed that we create social and cultural realities (rather than viewing them as pre-existing and immutable structures) and that those social realities in turn create us as inherently social beings. Social transformation is therefore our responsibility, through reflection and action. In order to create culture differently, Freire argued that we must understand the systems and mechanisms that perpetuate the status quo. He also insisted that no matter how submerged we are in the culture of silence and invisibility that surrounds oppression, we are all capable of a critical consciousness of social reality. That is, we can all learn the ability to identify and evaluate the aspects of our experience in which we feel manipulated, coerced, or ignored due to our membership in a social group.

While Freire's analysis of oppression focuses largely on social class, educational theorist bell hooks (2014) draws significantly on Freire in developing an anti-oppressive pedagogy relevant to multicultural contexts. As one of the first feminist theorists to write convincingly about the intersecting dimensions of sexism and racism, hooks expands the concerns of anti-oppressive teaching and learning to issues of race, gender, and ethnicity. Anti-oppressive educator Kevin Kumashiro (2000) further develops critical pedagogy by infusing a postmodern perspective informed by queer theory as well as by Buddhist philosophy. Like hooks, Kumashiro resists a prior tendency toward over-simplification and generalization when proposing strategies for addressing oppression, emphasizing the fluid, context-specific, and highly subjective nature of human experience.

These educational theorists provide a number of useful insights into how oppression is learned (and may be unlearned); 1) we learn from experience as well as through instruction, and therefore

the strategies we employ to challenge oppression must provide opportunities to explore our experiences, not just provide instruction on cultural competency, 2) changing oppressive social patterns and structures requires an understanding of how they function, 3) oppression is enacted through multiple, intersecting social identities and positions (rather than as a single "top-down" force and corresponding "bottom-up" resistance), and 4) practices designed to resist and transform oppression must continually adapt to the changing contexts and diverse needs of the people they serve. However, as valuable as these contributions are to understanding how oppression is enacted and maintained as a social construction, these perspectives consistently fail to address one of the most significant and enduring strategies for perpetuating inequitable social relations: the everyday embodied interactions we have with each other.

Oppression Embodied

Scholars in nonverbal communication have long recognized the significance of our bodily comportment² and argue that nonverbal behavior affects our relationships and interpersonal environments in intricate ways, providing insight into emotional states and influencing perceptions of competence, sincerity, authority, and vulnerability (Manusov & Patterson, 2006). In fact, some researchers argue that the nonverbal component of social interaction (rather than institutional structure) is the locus for the most common means of social control (Freeman & Henley, 1995). Despite its importance in human interaction, Ekman and Friesen (1969, p. 181) note:

[Most people] do not know what they are doing with their bodies when they are talking, and no one tells them. People learn to disregard internal cues that are informative about their stream of body movements and facial expressions. Most interactive nonverbal behavior seems to be enacted with little conscious choice or registration; efforts to inhibit what is shown fail because the information about what is occurring is not customarily within awareness.

Nonverbal communication researchers have shed light on this largely unconscious element of interpersonal interaction and helped us to better understand the nonverbal communication differences across a range of social categories and cultural groups. One of the most significant findings of this research is the conclusion that asymmetrical interactions are a hallmark of the nonverbal exchanges between individuals from dominant/subordinate social groups.

This nonverbal asymmetry between individuals with differing social status can take the form of an unequal access to certain behaviors related to informality and intimacy (Freeman & Henley, 1995). In these cases, the individual with more power is usually acknowledged (by both parties) to have the right to exercise certain familiarities which the subordinate is not permitted to initiate or reciprocate. For example, in conversation with an employee, a man may lean back in his chair in a relatively casual and relaxed posture, while his female employee is expected to maintain a more formal demeanor. That same supervisor may touch his employee casually on the arm in the course of making a conversational point, but the employee does not have the same license to initiate touch with her supervisor. This initiation or increase of intimacy and informality is the right of the individual with higher status or power, and this prerogative affords them more control of the relationship.

² According to Marcel Danesi, (1999), human beings have the capacity to produce nearly three-quarters of a million distinct physical signs, including different bodily postures, hand gestures, and facial expressions. Conservative estimates suggest that the nonverbal component of human communication accounts for nearly 70% of a message's meaning (Birdwhistell, 1970) and up to 90% of its emotional content (Fromkin and Rodman, 1983; Mehrabian 1968, 1981).

The use of personal and interpersonal space provides another example of asymmetrical nonverbal interaction. Early studies in nonverbal communication (Sommer, 1969) showed that dominant animals and high-status human beings are afforded greater personal space, and those with lower status tend to yield space to those with higher status. Similar findings of asymmetrical interaction are found in the use of eye contact, control over time, and other categories of nonverbal behavior. In those situations in which one social group is regarded as inferior to another, members of that group will generally be more gesturally submissive, more readable (nonverbally expressive), more sensitive (accurate in decoding another's nonverbal expressions), and more accommodating (adapting to another's nonverbal behaviors) (Henley and LaFrance, 1995).

Although these asymmetries are often subtle, their impact over time is considerable. According to Henley (1977), members of socially subordinated groups are constantly reminded of their inferior social status through the nonverbal messages they receive from others. They are also required to affirm that status in their response to those messages, as well as in the messages they themselves transmit. Freeman & Henley (1995) argue that the repetitive and insidious nature of these exercises in dominance and submission quickly slip below the level of awareness, effectively internalizing social conventions to the point where they may no longer even be recognized as oppressive.

Not surprisingly, these asymmetries find their way into the counseling room as well as the classroom, and preliminary attempts to extend the insights of anti-oppressive nonverbal communication research have now been made in the realm of multicultural counseling theory and practice. Informed by Sue's (2010) multicultural counseling theory and the notion of oppressive interpersonal interactions as "micro-aggressions", Rivera (2010) found that the nonverbal behavior of the therapist and the client's resulting somatic response contributed to experiences of cultural mis-attunement in the therapeutic setting.

Given the compelling evidence from the literature on nonverbal communication, part of the task of learning from the experience of oppression must involve becoming more attuned to the nonverbal components of our everyday interactions with others – to how we read (and are being read by) others on a body level. However, it is important to recognize that these interactions are highly complex, fluid, and contextualized, and they are not just external actions we perform, like clothes we put on or tools we use. These embodied interactions are learned implicitly from our earliest social encounters onwards, and are deeply entwined with our sense of personal identity. In fact, a number of embodiment theorists (Butler, 1990, 1993, 2004; Weiss, Hanna, 1970) have argued that these interactions are nothing less than the process whereby we become who we are.

This perspective is echoed in the embodied, existential form of phenomenology put forward by Maurice Merleau Ponty (1945) and elaborated by Thomas Hanna (1987-88) which argues that we do more than simply perceive reality through our bodily senses; reality is constructed by the way in which we perceive it (Greene, 1997). This "somatic" point of view understands that our perceptions of the external environment affect our perceptions of the inner one. Shifts in physical musculature create adjustments in our emotional state. Changes in sensory phenomena inform changes in cognitive perceptions that, in turn, affect our relationship to the environment.

Although somatic theories recognize the integrality of the environment with the soma, somatic practitioners have not taken up socio-political issues specifically, with a few exceptions. Hanna's seminal work on somatics, *Bodies in Revolt* (1970), clearly articulates his argument that the need for a return to the lived experience of the body is related to the evolution of the human species, in response to industrialization, rationalization, and the commodification of the body. Other somatic theorists suggest that the legacy of oppression is perhaps most strongly felt in our bodies, and the massive global incidence of war, politically directed torture, famine, rape, and domestic

violence in this century indicates a "...criminal disregard for the muscle fibers, fluids, and neural networks in which we live" (Johnson, 1995, p.ix). In that respect, somatics can be seen as a strategy for reclaiming our bodies for ourselves, and understanding this process as both a personal and political act (Haines, 2014).

By infusing this somatic perspective with the clearly articulated categories and specific research findings of nonverbal communication, it becomes possible to differentiate the particular aspects of bodily experiences of oppression that may initially reside within us only as a vague unease, numbness, or constriction. Simultaneously, the somatic recognition of embodied engagement with others as constitutive of our very (and varied) identities suggests that the strategies implied by the nonverbal communication research (i.e., "take up more space", "use direct eye contact") should not be applied in a generalized, mechanistic, or superficial way. Rather, understanding how we perpetuate inequitable relations through our bodies allows us to make individual choices about how best to communicate our integrity and authenticity on a body level.

Oppression as Embodied Trauma

A final conceptual integration is necessary to fully flesh out the embodied approach to diversity work I am proposing in this paper. While nonverbal communication researchers point to the damaging and insidious effects of nonverbal subordination, when one understands these everyday interactions as a form of chronic trauma another important set of research findings becomes relevant. Psychological researchers and theorists have developed different understandings of how human beings are affected by traumatic experiences. Within the field of traumatology, the somatic effects of trauma have now been well documented (Jaffe & Segal, 2005; Levine, 1997; Ogden, Pain & Minton, 2006; van der Kolk, 1994).

Many theorists and researchers in the field of traumatology suggest that much of the violence and abuse resulting in post-traumatic stress disorder (PTSD) exists within a larger context of societal oppression. For example, Burstow cites scholars working in the area of trans-generational trauma and community trauma to argue that individuals from oppressed and marginalized groups are violated in ways that have lasting psychological effects. She writes, "The point is oppressed people are routinely worn down by the insidious trauma in living day after day in a sexist, racist, classist, homophobic, and ableist society" (Burstow, 2003, p.1296).

Burstow describes trauma response not as a disorder, but as a reaction to a kind of wound, and argues that there is a physicality to trauma that must be recognized even when no overt bodily assault occurs. In particular, she notes that the trauma of oppression often results in some degree of alienation from the body. This conceptualization of oppression as traumatic is further supported by Scott and Stradling (1994), who reported examples of PTSD that demonstrate full symptomatology (intrusive thoughts and images, avoidance behavior, and hyper-arousal) in the absence of a single acute trauma. They suggest that enduring psychosocial stressors may result in a stress disorder, and recommend changes to formal diagnostic criteria to acknowledge the effects of prolonged duress. My own research (2009) further articulates the links between trauma, oppression, and the body, and argues for a reevaluation of the significance of oppressive nonverbal interactions as a source of chronic complex trauma.

An Integrative Framework

By integrating key ideas and findings from anti-oppressive and experiential education, nonverbal communication, somatic theory, and traumatology, a conceptual framework emerges that explains and addresses how our bodily selves are implicated in, impacted by, and constituted

through inequitable social relations. The statements that follow can be considered the pillars of this conceptual framework, and are each supported by research and theoretical testing.

- We learn oppression implicitly and relationally, through everyday experiences of social and political life.
- Our experiences shape (and are shaped by) multiple and intersecting social identities.
- Our bodies are a primary locus of these intersecting social identities.
- We learn about social systems through interpersonal nonverbal interactions.
- The nonverbal component of social interaction is one of the most powerful, ubiquitous, and insidious means of social control.
- Oppressive social relations are characterized by asymmetrical nonverbal interactions across a range of behavioral categories.
- Trauma is mediated through the body and manifests in embodied experiences of post-traumatic stress symptoms.
- Oppression is traumatic.

Based on these assertions, a comprehensive and inclusive approach to diversity and anti-oppression work would be one in which oppression is understood as learned behavior, and in which the body's learning is figural. It would facilitate (un)learning that is experiential and relational, be able to work with the complexity of intersecting social identities, support somatic literacy³ and fluency in body language, and recognize the traumatic imprint of oppression on embodied experience. The model described in the second half of this paper represents my own attempt to address these multiple requirements in a format that is accessible and relevant to counselors, educators and human services professionals working across a range of professional contexts.

Cycle of Embodied Critical Transformation

This section describes a model of transformative learning that privileges the knowledge of the body (e.g. bodily sensation, body image, and nonverbal communication) in exploring issues of social power, privilege and difference. In developing it, I am significantly indebted to the work of David Kolb, whose cycle of experiential learning serves as its foundation. Building on the work of Dewey, Freire, and Piaget, Kolb's (1984) experiential learning theory consists of four stages:

- 1) experiencing (often called concrete experience),
- 2) reflecting (reflective observation),
- 3) thinking (abstract conceptualization), and
- 4) acting (active experimentation).

According to Kolb, these stages represent the natural process of learning from experience. This natural process can be enhanced by focusing intentionally on each phase, ensuring that no aspects are overlooked, and maximizing the learning possible from any given experience. Readers familiar with his work will see the clear outlines of his four stage cycle in my model, as well as the ways these phases have been elaborated to address issues of embodiment and diversity more specifically. A graphic representation of the model is included as Table 1.

³ Somatic literacy is a term coined by Paul Linden (1994) to describe a degree of conscious awareness of bodily sensations and actions.

This model of embodied critical transformation is further informed by research I have conducted into the embodied experience of oppression (Johnson, 2009). The findings of that study can be summarized as follows: 1) the embodied experience of oppression is multidimensional, 2) there is a relationship between the somatic effects of trauma and embodied responses to oppression (particularly with respect to constriction and arousal), 3) body language plays an important role in navigating oppressive interactions, 4) oppression affects body image, and 5) the body is an important source of knowledge and power in unlearning oppression. Each of these issues are addressed in the model as separate, as well as overlapping, components.

This section also articulates pedagogical and facilitation issues relevant to the use of this model, and includes suggestions for program planning and evaluation. As much as possible, I elaborate the model using examples from my own experience, and describe the process from my perspective as facilitator. This should not be taken as an indicator that the participant's perspective is less important, but that I write for an intended audience of professionals who will be curious about how they might apply this model to their own practice.

Embodied Critical Pedagogy and Facilitator Preparation

A hallmark of most experiential education, social work, and counseling models is the insistence that practitioners wishing to facilitate a process for someone else must prepare by thoughtfully and honestly examining our own experience with respect to the issues being addressed. In working with this model, I have found it essential to have a solid personal understanding of embodiment and oppression. This is not to suggest that as a facilitator, I must have identical experiences as my participants in order to be informed and helpful (for example, that I have personally experienced homophobic discrimination), but that I should enter the facilitation with some awareness of my own potential triggers, blind spots, expectations, assumptions, and projections. Prior training in somatics and diversity work has also been an important prerequisite, so that I have more than my own experience to reference when facilitating someone else's.

As a facilitator, I approach this work from a perspective that acknowledges issues of power and privilege. A "top-down" instructional or counseling style is incongruent with this model, and would only serve to reinforce pre-existing asymmetries in role power between facilitator and participants. Approaches to working with others that have emerged from liberation psychology (Martín-Baró, Aron and Corne, 1994), community psychology (Nelson and Prilleltensky, 2005) and feminist therapy (Burstow, 1992) offer facilitation strategies that are better suited to this model.

In the spirit of these counter-hegemonic approaches, I believe it is important to treat the learners as central to the process. My role is not to impart knowledge or information, but to help prepare learners to become actively engaged in understanding and working with their own experiences. As a facilitator, my focus should be on recognizing opportunities for learning as they occur within the field, creating an atmosphere conducive to honest and respectful disclosure, and supporting the critical and constructive review of an experience. I try to keep in mind that everyone learns differently, and that reactions to experiential exercises will vary across learners. Given the often-charged material being explored, I also prepare for unanticipated responses to material, and encourage multiple perspectives on a single "shared" event. I do my best to appreciate that learning and unlearning can be hard, and work to cultivate an environment where encouragement and empathy precede and support challenge and risk. I recognize my power as the facilitator, and how my body communicates my beliefs, attitudes and values to

participants. To that end, I encourage participants to question my authority within the agreed upon norms of safety and mutual respect.

Perhaps more than is usually the case for experiential learning situations, I also attend to the setting as part of my facilitation. Although concerns such as comfortable seats, natural light, and fresh air might seem like relatively insignificant details, research shows that we are more affected by our environment than we realize (Gladwell, 2007). I have found that creating a container that supports the sensory needs of the body signals to participants that their embodied experience is valued by the facilitator.

Program Planning Using the Cycle of Embodied Critical Transformation

When generating ideas for exploring embodied experiences of oppression using this model, I have found it important to base my strategies on the learning/counseling context and on learner/client characteristics, and to think through the objectives for any particular “exercise” or “intervention” to make sure they align with the stated objectives of the course or session. Since not everyone is familiar with an experiential approach, I take care to orient students/clients to one another and the learning/counseling context, and to engage in a process of informed consent before participants agree to take the risks entailed in opening up to experience. My orientation always includes a discussion of safety guidelines (such as confidentiality, non-coercion, and bracketing strategies), voluntary participation, and guidelines for the safe use of touch and movement.

Because I use this cycle primarily in the context of graduate coursework, I also orient participants by providing advance readings. I often assign Eli Clare’s *Stolen Bodies* (2001), which advocates for a return to the body in working with issues of gender and disability, and my own research paper on the embodied experience of oppression (Johnson, 2009), which outlines the conceptual framework and research findings that are the basis for the approach.

As participants arrive and the class begins, I continue the orientation and containment process through a series of strategies and actions. I will often put a relevant, inspirational quote on the projector screen for participants to read and mull over as they arrive. As we begin, I facilitate introductions that usually include an expression of participants’ hopes and fears about the course, and a body gesture that expresses how participants are feeling in their bodies in the moment. From there, I provide a brief description of the course and describe the cycle of embodied critical transformation, referencing Kolb’s experiential learning theory. The session then begins in earnest, with our first experiential exercise and use of the full cycle⁴.

Phase One: Embodied Experience of Oppression

Like Kolb’s cycle, the cycle of embodied critical learning usually starts with a concrete experience. In other words, it begins with doing something in which the individual or group is assigned a task, or “experiment”. For example, I might ask participants to locate an object in the room that symbolizes oppression to them, draw a picture of how their body feels when they are critical of it, or work with a partner to discover their own personal space boundaries. Unlike Kolb’s cycle, this phase of the cycle of embodied critical transformation focuses specifically on activities designed to elicit experiences of privilege, discrimination, or marginalization, and to include interoceptive data and nonverbal behavior.

Some examples of experiential exercises I have used include improvised movement in which participants notice bodily sensations as they shift from lying quietly on their own, to sitting and standing, and eventually moving around the room with others. This exercise highlights the relational nature of embodiment and gets participants more warmed up to each other without speaking. Other exercises include a variation on McIntosh’s (1988) ‘invisible knapsack of privilege’ in which participants choose real objects to symbolize the social privileges they enjoy. Exercises on embodied boundaries, safe touch, and kinesthetic empathy highlight some elements of nonverbal communication, and an exercise on “reading” bodies helps participants explore the degree to which judgments, assumptions, and projections are based on body image. I also include experiential components designed to help participants explore how their bodies can be sites of strength, empowerment, and resistance – not just sites of distress and limitation.

These embodied experiential exercises are intended to evoke a tolerable amount of bodily sensation in relation to issues of power, privilege and difference. I usually sequence the exercises along a continuum from less to more interactive, and from less to more challenging in terms of topic. They work best when I take the time to set up the experience clearly and carefully, and then allow participants to engage with it in their own way. As much as possible, I use language that is inclusive or evocative of embodied sensation or movement. For example, “as you move toward your partner, notice the quality of your breathing.” I have learned not to make the experiential exercises too long or too elaborate, and to allow time for participants to transition into (and out of) a more embodied state of consciousness. In choosing or designing experiential components, the essential criteria are that the experiences address issues of social power, and that they engage participants’ bodies in some way.

Phase Two: Embodied Critical Reflection

“For individuals who experience monetary, time or bandwidth poverty, reflection is a luxury good.” (Konnikova, 2014, p. SR1.)

Reflection is perhaps the most important of the experiential learning process. In it, we begin the crucial task of unpacking, deconstructing, and examining each facet of an event that may initially be experienced as a chaotic or undifferentiated mass. Reflection can be done alone, in pairs, or in groups, but most people seem to need a relatively quiet and time-spacious environment to get the most from this phase of learning. Facilitating embodied critical reflection is challenging, but asking the right questions and guiding conversations in strategic ways can help open participants to powerful and empowering insights. As the above quote suggests, the simple act of providing time to reflect on their experiences can help support individuals dealing with oppression and discrimination. We all know what it’s like to operate in crisis mode, putting out one fire after the next without a moment to investigate the cause of the flames. Reflection is the first step in shifting out of crisis mode and into a more responsive and proactive stance.

While reflection in most experiential learning models is intended to be “critical”, in that participants are encouraged to examine their experiences from multiple perspectives, in this model the emphasis on social critique is emphasized. The dominant or default social lens is identified, and a counter-hegemonic perspective explored. As a facilitator, I actively inquire about power and privilege, and encourage participants to question social norms and assumptions. I also ask about “dominant” culture and “home” culture norms with respect to the experience being explored. My questions are intended to illuminate all facets of an experience and evoke a tolerable amount of somatic disequilibrium. When reflection is undertaken in pairs or small groups, I attend to the

⁴ Although the description in this paper focuses on the use of this cycle with a group in a course or workshop setting, I have also used it with clients in individual counseling, and found it easily adaptable to that setting.

interactive/relational element of reflection, and support participants to privilege self-reflection over outside observations – in other words, to claim expertise on their own experience without disregarding the input of others.

In this model, participants are also asked to explore their experience from a somatic perspective. During reflection, they are encouraged to be curious about how they felt in their bodies during (and after) the event, to identify the nonverbal behavior that occurred, and to use their capacity for bodily sensation and imagery to illuminate their experience. In other words, this model recognizes that reflection is not simply a cognitive process, but also occurs through bodily expression (i.e. movement). This model deliberately engages this natural process of feeling and moving through an experience to extend and deepen reflection. During embodied critical reflection, participants gather an embodied “felt sense”⁵ of the experience that begins to help clarify all its possible meanings.

Phase Three: Integrated Distillation

After identifying, critically examining, and gathering together all the elements of an experience, the next step in the cycle asks participants to distill these various aspects and perspectives into a more cohesive whole. In Kolb’s model of experiential learning, this is referred to as the abstract conceptualization phase, and is characterized by an emphasis on thinking and hypothesizing. In this model, I expand the notion of concepts to include images, sounds, and gestures (not just words). In the cycle of embodied critical transformation, it is recognized that making meaning from experience is not always a rational process, and the role of the body in generating concepts and testing them for “fit” is underscored. Eugene Gendlin’s *Focusing* (1981) provides an excellent illustration of how the body can generate explicit knowing from implicit data. In it, the ‘felt shift’ described by Gendlin is a bodily change and sense of release that accompanies a new understanding of something that was previously unclear, in a process of organizing information at a higher level of integration.

For example, a participant might generate an “integrated distillation” in the form of a bodily sensation instead of a cognitive thought or concept. Perhaps an experience of feeling judged because of their non-normative gender presentation is distilled into a sensation of collapse in their ribcage. Although it might seem like this collapsing feeling is “just” a bodily sensation that accompanies the experience of feeling judged, because of the reflection and distillation process they have undergone, that sensation now symbolizes a whole set of understandings that has become anchored in their body. When I check with them to see if the sensation of ribcage collapse ‘fits’ with their experience of feeling judged around their body image, they describe a corresponding affirmation on a body level – a sense of release, relief, and settling. Once confirmed, this distilled sensation of collapse easily leads them to experiment with how they might want to shift or change that sensation (and possibly, by extension, their next experience of feeling judged around body image).

Further facilitation around this experience might include some referencing to pre-existing concepts and research findings about body image and trans* oppression. For example, I might want to help support their integrated distillation of “ribcage collapse” by offering ideas about musculoskeletal responses to chronic trauma (Scaer, 2014), or about shame and queer body image (Atkins, 1998). In this way, I help the participant stay anchored in self-generated ideas about their experience, while benefiting from the validation and elaboration of externally generated concepts.

The hallmarks of the integrated distillation phase are:

- Analysis, insight and meaning making in this phase includes somatic and social data
- The process works to help “name” nonverbal (i.e., embodied) micro-aggressions
- It generates critical concepts that are embodied as well as cognitive
- Self-generated concepts are privileged over other-generated concepts
- Concepts may take the form of embodied image, posture, or movement (not just words)
- The process results in an embodied “felt shift” in the participant

Once the experience of oppression has been meaningfully explored, participants move to the task of experimenting to change that experience in their bodies and in the world.

Phase Four: Embodied Critical Experimentation

This phase of the cycle focuses on new ways of acting in (not just thinking about) the world. Specifically, it asks participants to experiment with solutions to the problem of embodied oppression they have identified in the previous phases of the cycle. As I ask participants to be curious about the broader implications of their experience, I also acknowledge the challenge and risk of enacting certain new behaviors, and the social constraints on choice of action. This phase often works well in a small group format, so that peers can help each other identify what needs to be changed, and how. Role-plays can provide participants with an opportunity to apply their concepts to real-world contexts, and to practice new ways of being in their bodies in a relatively safe and supportive environment.

As a facilitator, I find it helpful to remind participants to stay connected to their embodied experience as they play with new behaviors, and to refer back to the integrated distillation of meaning in the previous phase to assess if the experimental ways of being in the world differently help to shift it. For example, I might suggest a participant experiment with keeping their ribcage lifted in the face of perceived scrutiny or judgment about their gender presentation. To be clear, it’s not that lifting their ribcage is a certain and complete solution to the problem of feeling judged (or being judged) around trans* body image, but that lifting their ribcage will *change their experience* the next time they’re in that situation, and may lead to other changes in them (for example, feeling pride instead of shame) or others (showing respect for their embodied difference because of the way they carry themselves).

The real-life response to a participant’s experiments sends them into a new round of the cycle, based on this new experience of being in their body differently. Depending on how their experiment worked, they may go back into the reflection and conceptualization phases to adjust their understanding of the issue, or develop refinements of action. Each encounter changes them, orients them to the problem or issue in a slightly (or hugely) different way, and being intentional about embodied critical reflection, integrated distillation, and embodied critical experimentation allows them to keep learning in a proactive way.

Lastly, working this cycle should also attend to closure, acknowledgment, and the celebration of learning. Although engaging with one complete turn through the cycle to the “embodied critical experimentation” stage usually leaves participants with a sense of completion and orientation, as a facilitator, I think about how to build in the space and

⁵ The term ‘felt sense’ is used by Gendlin (1984) to describe the second step in Focusing.

time for all participants to shift safely out of deeply interoceptive or emotionally charged states before they leave the class or session. I usually end my sessions with an opportunity for participants to share what was learned, and to identify next steps in their process.

Program Evaluation Using the Cycle of Embodied Critical Transformation

The cycle of embodied critical transformation described on the preceding pages is designed to help participants grasp and transform the experience of oppression in their bodies. As a facilitator, I believe it's important to know if this happened, and to understand what elements of the program design and facilitation supported or hindered that process. Although practitioners working outside formal agency and institutional settings may not consider assessment an essential part of their facilitation, making evaluative mechanisms explicit and intentional can be helpful, even in individual counseling. Having clear assessment strategies helps us to understand what kind of learning (and change) is really taking place, and supports and directs our efforts as facilitators.

Program evaluation can be structured on the same cycle pattern as the model of embodied critical learning, using the same four phases:

- First, I gather participant feedback about the **experience**, both during and after the session. I ask what worked and didn't work, and often focus specifically on embodied sensation and integrated distillation, as I have learned from numerous previous evaluations that this is where participants often struggle.
- I then **reflect** on this information, and add it to my own impressions. I **distill** these reflections into broad themes that "feel right" in my body when I consider their meaning.
- Using these themes, I revise the program or my facilitation strategies accordingly, and **experiment** with them the next time I facilitate.

Over the years, these evaluative strategies have had a significant impact on the structure, content, and delivery of the cycle. I have also come to understand some of the aspects of this cycle most valued by those who engage with it. Consistently, participants express feeling validated by a process that recognizes how much of oppression is enacted through the body. They are often relieved to realize that they are not 'overreacting' when they are sensitive to embodied microaggressions or struggle with body image. Participant feedback has also underscored how important it is to cultivate the living body as a resource for personal resiliency and social advocacy. In the same way that somatic trauma models (Levine, 1997; Ogden, Minton and Pain, 2006) emphasize resourcing before repairing, participants remark on how important it feels to engage in diversity work that feels strengthening and grounding (rather than discouraging or shaming).

Conclusion

Social justice remains one of our most pressing and intransigent issues, especially in the face of escalating environmental and economic concerns. With the increasing recognition of the body's role in social interactions, a more embodied approach to diversity and anti-oppression work is a timely addition to the tools and strategies already in use among helping professionals. The model of embodied critical learning described in this paper offers one way to work with the embodied experience of oppression that focuses on the lived experience of the oppressed, and offers strategies for grasping and transforming that experience.

BIOGRAPHY

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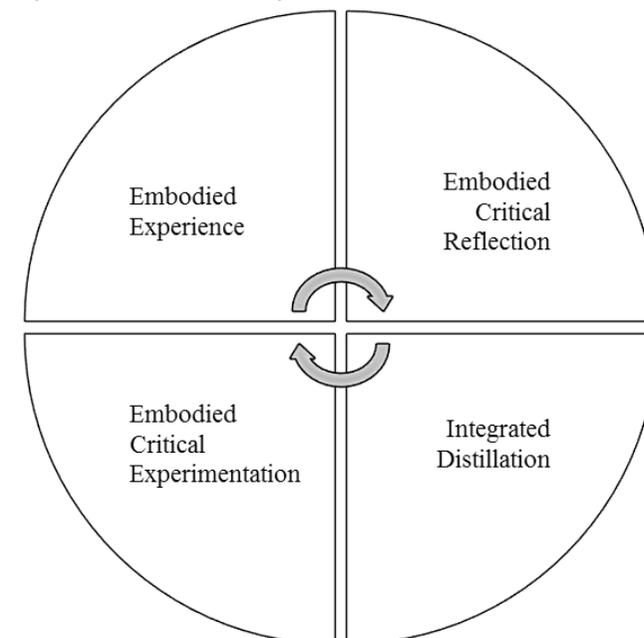
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Figure 1: Cycle of embodied critical transformation



Dissertation and Masters' Theses Abstracts from Somatic Psychology and other Graduate Programs

THE CHICAGO SCHOOL OF PROFESSIONAL PSYCHOLOGY DISSERTATION ABSTRACTS

Is Your Brain on Board? Quantitative Correlations between Attachment Styles (ECR-R) and Body Awareness (MAIA) Elizabeth Juliet-Lyle Lutz, 2014

Attachment style and body awareness are an increasing focus of interpersonal biology research and clinical efforts. Multidisciplinary literature in affective neuroscience, psychobiology, pain management, obesity, exercise and eating, and other anxiety disorders focuses on neural correlates of these behaviors. Somatic information is encoded synergistically in the anterior cingulate cortex (AIC), within the biological template formed during early attachment. This dissertation examined correlations between anxiety subscales measured by the Experiences in Close Relationships Revised (ECR-R; Fraley et al., 2000), the Multidimensional Assessment of Interoceptive Awareness (MAIA; Mehling et al., 2012), and demographic descriptors from the Kaiser Adverse Childhood Experiences (ACE) study (Felitti et al., 1998). Stressors, stress-regulation activities, and stress-related diseases based on anxiety reported by participants were correlated with the attachment style (ECR-R) and body awareness (MAIA) subscales. Attachment style subscales from the ECR-R were found to correlate to body awareness subscales from the MAIA in the participant group (N = 504). Included are implications for assessment and treatment of common clinical presentations of anxiety and stress disorders, directions for further research in integrative medicine, hermeneutics of attachment theory, potential for the use of integrative assessment in healthcare, and further phenomenological study on how we choose what we eat. Full document available at www.elizabethlutz.com.

A Phenomenological Exploration of Compulsive Sexual Behaviors as an Embodied Experience of Heterosexual Women Giselle Teller-Holt, 2014

This doctoral research study used a phenomenological qualitative approach to explore compulsive sexual behaviors as an embodied experience of heterosexual women. Eight women were interviewed using open-ended questions and a Focusing exercise (Gendlin, 1981) Although most of the sexual encounters were non-paraphilic and might be viewed as common dating behavior, the co-researchers expressed shame and distress because of their sexual encounters. The textual data derived from the co-researchers' words were analyzed using NVivo 10 software and the van Kaam Method, modified by Moustakas (1994). The findings reveal patterns of internal and external dissociation, shame that becomes anger, commitment challenges, and the relinquishing of personal agency of their sexuality. Most notably, their ability to describe their embodied experience was absent in all but two of the co-researchers. The two co-researchers who were able to describe their embodied experience reported a history of psychotherapy to address the shame resulting from past sexual behaviors. This implies a connection between the ability to be embodied and healing sexual shame.

All eight co-researchers came from a dysfunctional family-of-origin system, such as: they did not feel safe with their fathers/step fathers; biological fathers were emotionally and/or physically absent; they were sexually abused by their step-father/step-brother/other male adult brought into the house by their mother or stepfather. This supports the literature that attachment history impacts the development of female sexuality. The researcher encourages future research into the interconnectedness of one's ability to be embodied and the absence of sexual shame.

NAROPA UNIVERSITY MASTERS THESES ABSTRACTS

Remote Communication Technologies in Dance/movement Therapy: Survey Results of Therapist Uses and Perceptions Marcel Zobel, 2013

The use of Remote Communication technologies in facilitating therapy has been an emerging phenomenon within the counseling field and is predicted to rise in the coming years (Norcross, Hedges, & Prochaska, 2002). In an effort to identify current trends regarding these technologies within the Dance/Movement Therapy (DMT) community, a survey was distributed to members of the American Dance/Movement Therapy Association (ADTA). Information gathered from this survey demonstrated that the telephone was used significantly more often for remote communication with clients than other technologies ($p < .001$). More experienced therapists were more likely to engage the therapeutic process over the phone ($p < .001$). Significant differences were not discovered in the use of remote communication technologies between individual or group clients. Dance/Movement therapists rated the telephone as significantly more likely to be helpful in the therapeutic process than other means of remote communication ($p < .001$) and rated risks to client anonymity and confidentiality as the aspects of therapy that were most at risk of harm with such technologies ($p < .001$). A discussion and considerations for future direction are offered.

The Dance of Cultural Identity: The Use of Dance/Movement Therapy to Explore Race and Gender with a Group of Adolescents-Assigned-Female-at-Birth Etalia Thomas, 2013

This study worked with a group of adolescents-assigned-female-at-birth at an urban middle school, to create a performance centered on the question, "What does it mean to be a girl in the twenty-first century?" The author used dance and movement to generate ideas, explore themes, and embody the lived experiences of the participants. Results echo the tenets of third wave feminism, demonstrating an era of "girl power," choice, and gender equality. Community-based-participatory-research (CBPR) was the qualitative method used to gather and analyze data. Although it is not without flaws and limitations, CBPR facilitates the use of research as a method for improving community structures from the inside and employs community members as active participants who are involved in most, if not all, of the research process. This study included its participants in the process of gathering and analyzing data, the creation of the performance, and the dissection of performance impact on audience.

**Implicit Bias and Body Psychotherapy:
Cultural Competence from a Body-Centered Perspective**
Manuel Gomez, 2013

A body-centered perspective is proposed to enhance the three aptitudes of knowledge, awareness, and skills, expected of culturally competent psychotherapists. Information and strategies are provided to support counselors in the process of assessing, identifying, and reflecting on their own implicit biases; expanding the counselor's capacity to become aware of their implicit biases; and developing body-oriented interventions to counteract the expression of implicit bias when interacting with clients targets of bias.

**Therapist Qualities, Interventions, and Perceived Outcomes:
Bringing Developmental Movement into Body Psychotherapy**
Becky Snell, 2013

The past decade in the field of psychology has seen an increasing awareness of the connection between mind and body in psychotherapy. Working directly with the body, utilizing Developmental Movement in particular, has had success with children, some developmentally challenged, in reading, balance, and coordination (Goddard Blythe, 2005). Previous research has been done with children utilizing Developmental Movement, and has shown a decrease of undesirable behaviors related to Attention Deficit Hyperactivity Disorder (Patterson, 2010). However, research on utilizing Developmental Movement with adult clients is lacking. In response, this research study was conducted to assess how Developmental Movement can be used with adult clients in individual psychotherapy. This research presents a qualitative interview study that seeks to answer this question and take a step in filling this gap in the Body Psychotherapy literature. Five therapists utilizing Developmental Movement in individual therapy sessions with adult clients were interviewed. Results of this study indicate that there are themes consistent among the interviewees regarding the qualities that a therapist needs to have to facilitate a session utilizing Developmental Movement, the types of interventions used, and the perceived outcomes of utilizing Developmental Movement with adult clients.

**Reparative Dances:
Applying Daniel Stern's Forms of Vitality to the Dance Movement Therapy Dyad**
Hillary E. Sinn, 2013

"Vitality forms," a concept introduced by Daniel Stern to describe the total felt experience of dynamic qualities within the body and between bodies in relationship, is offered as a theoretical framework to the therapeutic dyad of dance/movement therapy (DMT). Although DMT has its roots in body-based attunement and has a long history of responding to and tracking dynamics in relationship, the field has not explicitly framed the work in this way. This article proposes that dance/movement therapy is a clinical application of Stern's concept, and explores the possible benefits of invoking the concept of "vitality" in communicating the work. A case vignette is offered to illustrate the presence of vitality forms within the context of a DMT session.

**The Integrative Power of Dance Movement Therapy: Implications for the Treatment of
Dissociation and Developmental Trauma**
Laura Pierce, 2013

Chronic and compounding exposure to traumatic events, especially within the context

of early attachment relationships, can result in symptoms of dissociation commonly seen in dissociative disorders, personality disorders, and post-traumatic stress disorders. This theoretical article proposes an application of dance/movement therapy as facilitative of right brain integration in adult clients who present with trauma-related dissociative symptoms. Findings from trauma psychology, neuroscience, and dance/movement therapy literature are used to create an attachment-oriented theoretical foundation for how dance/movement therapy might support the integration of dissociated somatic, emotional and psychological experiences. A model for case-conceptualization and treatment planning is proposed according to a phase-oriented trauma treatment framework, with interventions accompanying the three phases of safety and stabilization, integration of traumatic memory, and development of the relational self. In particular, dance/movement therapy interventions such as body-to-body attunement, kinesthetic mirroring, interactive regulation, self-awareness, symbolism and expression, and interactional movement are examined as applications that may support bottom-up integration and resolution of psychological trauma. Theoretical limitations and suggestions for future research are also discussed.

**JOHN F. KENNEDY UNIVERSITY
MASTERS THESES ABSTRACTS**

**Reclaiming Your Inner Dance:
Dance/movement Therapy for Sexual Trauma Survivors Abroad**
Musenge Luchembe Hayslett, 2014

The objective of this Professional Integrative Paper is to utilize the contributions of Dance/movement Therapy (DMT) pioneers in order to illustrate that DMT is an effective therapeutic technique for survivors of sexual trauma that can be applied to immigrants and refugees in the United States as well as abroad in their native countries. Part One explores therapy techniques developed to treat clients with varying levels of functioning, struggling with intrapersonal and interpersonal relationships due to symptoms from psychosis, PTSD, or stressors produced from living in a highly mechanized society. Part Two includes the clinical applications of these methods with three young women as they begin their three month long residential treatment program for trauma survivors in Zambia. Part Three covers the writer's personal experience with DMT for sexual trauma. The discussion also describes areas for additional research and implications for future research.

An Improved Public School Life
Jill A. Sweeney, 2014

The public school system is failing our country, and some of the things that can be enhanced upon are an improved curriculum and a holistic look at the students in classrooms. The discussion explores alternative methods from the perspectives of transpersonal psychotherapy and humanistic theories. A clinical perspective explains how a psychotherapist in each classroom could aid the teachers and help to improve behavioral and emotional issues for students. Bridging home and school life together with psychotherapy will positively impact racial issues, poverty, and high incarceration rates due to the existing school system. An improved public school system will promote a positive academic experience, healthy relationships, better mental

health, increased self-esteem, and offer resources to prepare students to enter the world as self-sufficient adults.

A Holistic View on PTSD
Noelle Morra, 2014

The Veterans Administration has addressed a large spectrum of challenges that the mental health profession are up against when treating PTSD. A considerable amount of time, effort and resources are contributed to Veterans in the hope that lives will be improved for those who have served our country honorably. It is vital to understand how and to what extent stress contributes to mental dysfunction in terms of its chemistry, its stages, and its origins. It is also vital to have a strong understanding of the introduction of stress education and stress interventions, as they should be a critical component during the counseling process because of both the emotional and chemical imbalance it generates in the brain and body. In addition, by addressing the various aspects of prolonged exposure therapy that need improvement, with the necessary focus on improvement of cardiovascular health and improvement of basic life skills in PTSD patients, the advancement will significantly increase the quality of the recovery of long-term health for veterans.

The Use of Ritual for Practitioners of Hospital Psychotherapy
Camille Campbell, 2014

This paper explores the psychotherapist's use of personal ritual as a powerful tool to increase clinical effectiveness with patients seen in hospital settings. The author suggests that understanding the therapy relationship neurobiologically can aid therapists in understanding their own mental integration and in creating effective rituals for self-care. This idea is examined from a theoretical, personal, and clinical perspective. The author provides a pragmatic definition of personal ritual and presents a theoretical foundation drawn from interpersonal neurobiology and sensorimotor psychotherapy. The personal section delves into the author's yoga and meditation practices and explores their connection to the ideas raised in the theoretical section. Finally, the clinical implications of these ideas are explored in three case studies. The author's stated goal is to leave the reader with a working definition of ritual and an idea of how to create one and implement it into his or her clinical work.

EUROPEAN ASSOCIATION FOR BODY PSYCHOTHERAPY
2014 STUDENT RESEARCH AWARDS

INSTITUT FÜR ATEM & KÖRPERPSYCHOTHERAPIE
SWITZERLAND

„Ich geh dann mal weg.“ Kommunikation bei dissoziativen Phänomenen in der AKPT
“I'm going away” Communication in Dissociative Phenomena in Breath
and Body Psychotherapy
Mona Gollwitzer, 2014

Many clients have experienced behavioral therapy, psychoanalysis, or other verbal psychotherapy. They do not (or no longer, or only up to a point) believe in the effects of verbal therapy. However, at the beginning they are very quickly overwhelmed by breathing and body exercises.

They want to do everything right, to progress, thereby becoming victims of high expectations, reducing their body consciousness, worsening their symptoms, and hampering the development of a therapeutic relationship. This is where a touch (contact) intervention becomes a valuable complement: clients do not have to achieve anything beyond observing and – to the extent of their possibilities – communicating. Expectations are reduced and the therapeutic relationship begins to take hold as effect (power) factor. However, especially in the touch intervention, the line between “not having to talk” and “not being able to talk” seems quite thin. The former occurs when the body relaxes moderately. The latter happens in conjunction with a sudden increase or decline in tonus or with vague bodily perceptions, thoughts, and fantasies. This is dissociation. Those affected often do not realize that they are dissociating, even though their lives, relationships (including their relationship with their own bodies), and bonding capacity are compromised. In this thesis, the author reviews the manifestations and possible neurological and psychogenic origins of dissociation. In particular, it looks at dissociation as a consequence of early trauma during the pre-speech development phase and reaches conclusions for the therapy of dissociative adults. It presents the AKPT concept of extended countertransference and shows how it can be applied to work with dissociative clients. In search of forms of communication promoting contact, it proposes a model of communication appropriate for development, and examines the possibilities and limitations of the touch intervention. A case study illustrates the application of the concepts and models presented.

REIDMAN INTERNATIONAL COLLEGE FOR COMPLEMENTARY MEDICINE
ISRAEL

The language of crying in body psychotherapy
Liron Lipkies, 2014

Everybody cries. From the moment we emerge into this world, and throughout our lives as adults, we cry in different situations and under various conditions. The reasons why a person chooses to cry or not to cry, the type of crying, the purpose of crying, its impact on the other person and the accompanied sensations, all these kept theoreticians and clinicians interested and curious for hundreds of years, from Darwin in 1872 to contemporary research conducted in the last few years (Kottler & Montgomery, 2001; Vingerhoets, Cornelius, Van Heck & Becht, 2000). However, since crying is structured as an adaptive behaviour which harnesses the other person to help (particularly during infancy when the baby uses crying as a language through which it asks of its primary attachment figure to provide it with its basic needs that the baby cannot provide for itself) (Nelson, 1998), I have chosen to examine crying primarily as a language within relationships, while relying on attachment theory (Bowlby, 1951, 1965). This study offers two vignettes to demonstrate two different types of crying. The first vignette describes chaotic crying which expresses a primal language characteristic of early infancy. The second vignette presents an organised crying which is accompanied by verbal explanations attempting to clarify the cause, which is indicative of later developmental stages where crying can also be interpreted as manipulative (Zeifman, 2001). Here, I emphasise the importance of non-judgmental examination of the subsymbolic communication therein. The therapeutic work in this situation involves an appropriate and non-shaming conversation also taking into account the subsymbolic aspects of the communication (talking with the body in its own language), as well as validating the symbolic-verbal messages. The important point raised here concerns the issue that when a client cries, the crying in itself is already

a subsymbolic communication, and therefore behind the words there will also be another emotional experience which is likely to manifest in resonance or as countertransference.

ECOLE BIODYNAMIQUE, FRANCE
LACAN BIODYNAMIQUE un Autre regard sur les psychoses
Towards a biodynamic psychosis treatment
Grégoire Rodembourg, 2014

Monitoring psychotic patients either in institutions or in private practices requires the adoption, and the support of, a particular transfer modality. Studying the works of both Freud and Lacan on this subject has brought to my attention a number of points in common between the psychoanalytic treatment of psychosis and Gerda Boyesen's biodynamic approach. After having isolated the specific transfer modalities of the psychotic structure, we look at the different possible treatments. The focus will mainly be on the dynamics of accompaniment and on the position of the caseworker. By opting for a presence which is drained of all personal will in regards to the individual, the therapist can facilitate the insurgence of new possibilities of being and self realisation; more creative, more respectful of the patient's vital force and personal dynamics. Clinical studies show how this attitude allows the psychotic individual to have a different type of social relationship with the other, significantly reducing the need to resort to a sacrificial act as a healing attempt. Finally we will compare the psychoanalytic and biodynamic approaches pointing out similarities pertaining to the position of the therapist in the relationship, the fitting out of the work schedule and the interest for the patient's own dynamics.

EABP Science and Research Symposium
at the 14th European and 10th International Congress
of Body Psychotherapy:
The Body in Relationship: Self—Other—Society
Nancy Eichhorn, PhD

The second EABP Science and Research Symposium provided a forum to discuss recent research, networking opportunities, and publishing options for body psychotherapists and researchers. The framework, formed during the Australian Congress four years ago, initiated the first symposium held at the 2012 Cambridge Congress. The Lisbon symposium stimulated the necessary conversation and collaboration to advance research in body psychotherapy and its clinical application. The 90-minute symposium comprised three segments: current research studies dealing with isolation, loneliness, and chronic depression; the EABP collaborative practice research network and writing clinical case studies; and updates in the field.

A Closer Look at Extreme Loneliness: Theory, Effects, and Possible Treatments

Extreme loneliness was defined as a distressing feeling in conjunction with the perception that the quality of one's social relationships is lacking—it is not the same as social isolation. It was noted that 15% to 30% of people living in the United States of America live with extreme loneliness and that related health issues run the gamut from physical concerns such as heart disease, sleep loss, and increased mortality to mental/emotional concerns such as depression, anxiety, and diminished self-esteem. Treatment approaches need to target enhanced social skills, social support, and social opportunity. According to body psychotherapist Maurizio Stupiggia, Vice President, Italian Association for Body Psychotherapy, people living with extreme loneliness have lost their connection to their body and therapists need to use the body in a special way to bring about recovery.

EABP Collaborative Practice Research Network and New Research Perspectives

Body psychotherapists/researchers/writers discussed means to gather data, connect with training institutions to create an effective research structure, and support research while maintaining a clinical practice. Michael Heller, PhD, author of *Body Psychotherapy: History, Concepts and Methods*, said that networking was necessary in order to ascertain who is working with body psychotherapy practices around certain pathologies (i.e., anxiety, depression) and to promote the use of body psychotherapy practices within the general clinical world. Discussions occurring on LinkedIn, i.e., Somatic Perspectives on Psychotherapy were mentioned as ways to network. Lidy Evertsen, EABP president, suggested inviting EABP members to share their written cases with a network of colleagues for response and reminding authors to reference their own theoretical background in case study presentations.

The reality that many clinicians are not trained in nor interested in conducting research was explored. Options to resolve this issue included creating a new agenda for research and supporting therapists to connect with researchers. Jennifer Tantia, USABP Research Committee chair, supported the idea of collaboration suggesting that if practitioners are going to contact researchers, they need to learn how to speak the language of research, and read their studies before contacting them to propose a potential liaison. Jill van der Aa, EABP General Secretary and Vice-President, reminded the audience that EABP policy has always been to connect professionals and enable collaboration.

Efficacy study: An exploratory randomized controlled trial of body psychotherapy for patients with chronic depression

According to Frank Röhricht, MD, FRCPSych, “We [body psychotherapists] are making ground when we are accepted in medical journals.” His current research study, “An exploratory randomized controlled trial of body psychotherapy for patients with chronic depression”, involving patients with chronic major depressive disorder and dysthymia, was published in the *Journal of Affective Disorders*, 155(1), 2013. In this study, Röhricht, Papadopoulos, and Priebe conducted a meta-analysis of the literature on major depressive disorder and a randomized, mixed-method clinical trial utilizing a manualized body psychotherapy model in a group therapy setting. Eight participants received 20 intervention sessions (90 minutes each) for 10 weeks. Outcome data showed a significant reduction in the treatment group: improved breathing patterns, improved mood, less pain, shifts in physical posture and gait. The next step is to obtain grant funding for a larger study.

The case study approach: An open invitation to case study research

Shelia Butler, EABP collaborative practice research network organizer, engaged the audience in an experiential exploration of case studies. She shared pictures of an unkempt man whose 20-year residence, noted as his ‘island’, was a cardboard box. He came to therapy of his own free will. She asked the audience to consider how they would approach a therapeutic relationship. Responses varied from “I would assume it would be difficult to reach him through interactions,” to “I wouldn’t assume our work would take place in my office. I would join him some place under a tree, meet on his ground.”

Butler used the experience to invite therapists to write case studies based on clients who stand out, whose story is uniquely their own. Therapists, she said, can explain and/or advance methodology by understanding and writing about the complexity of the therapeutic encounter. Butler then discussed different types of case studies and the need to develop a framework for writing about them. Courtenay Young added that a ‘how-to’ article for case study writing is available on the EABP website.

Training and Research opportunities

The Wilhelm Reich Foundation was briefly described; the foundation funds research studies designed to inform the world about body psychotherapy work. Those interested can contact Joop Valstar from the EABP.

Herbert Grassmann, Chair EABP Science and Research Committee, and Stefan Bischof, EABP Forum Executive Committee, addressed critical thinking skills in training programs, generating a student thesis data base, ways to improve research quality, and academic writing in the body psychotherapy field.

Jennifer Tantia overviewed the science and research situation in the US. According to Tantia, five graduate programs exist offering body psychotherapy degrees: three at the master’s level and two at the doctorate. As a research advisor to several student doctoral students, Tantia shared that students investigate body psychotherapy topics, but their dissertations are based in fields adjunct to body psychotherapy, i.e. social work, physical education, sociology, etc. Her current goal is to implement alliances between psychotherapists and researchers resulting in collaborative research for body psychotherapists.

Closure

The room pulsated as ideas floated from the stage out to the audience and returned with additions, modifications. Science and research, potentially fearful topics for the uninitiated,

the untrained, were honored during this session as presenters and audience members alike exuded a trust and a knowing. The organization worked well with a different moderator representing each segment and different presenters offering their piece yet all remained on stage and contributed throughout. The overarching theme of loneliness (and isolation provided a focal point for presentations creating continuity as well. I appreciated the audience participation and the respectful tones as ideas were offered without challenge or criticism; it was an open forum with space for everyone’s voice. And when one panel member did challenge another regarding his stance on body psychotherapy versus dance and movement therapy, the moderator handled the tension with a compassionate and honest response: yes, this is important but not right now. The controversy was set aside to be discussed at another time.

I have never attended a science and research symposium so I came with no preconceptions. I left with information to join the collaborative, access to a template to write an academic case study, concepts addressing quality research, and new contacts for networking. Considering the ramifications of all the topics offered, more time and perhaps pull-out groups might have been considered. The first annual symposium (2012) was a daylong event held Post-Congress in Cambridge. Perhaps the third annual symposium can also be a daylong event within the parameters of the actual Congress so more participants can attend.

The third annual science and research symposium will be given at the next EABP Congress in Athens, Greece, 13-16th October 2016.

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WRITING ABOUT BODY PSYCHOTHERAPY

An invitation to write for us, with us, with support along the way. Your writing can contribute to and enrich the 'body' of critical and reflective content, as well as to the clinical expertise, in the 'field' of body psychotherapy.

Whom can you write for?

We suggest that – for a professional article – you consider:

The EABP/USABP peer-reviewed **International Body Psychotherapy Journal** (for original work only):

www.ibpj.org

The peer-reviewed journal of Body, Movement and Dance in Psychotherapy (for original work only):

www.tandfonline.com/toc/tbmd20/current#.VBfpFS6wJRU

Or: (for German language authors) **körper – tanz – bewegung**; Zeitschrift für Körperpsychotherapie und Kreativtherapie: www.reinhardt-verlag.de/de/zeitschrift/51830

(You will find the necessary “instructions for authors” on their various websites.)

Or: for something a bit more conversational: **Somatic Psychotherapy Today**:

<https://www.SomaticPsychotherapyToday.com>

Or: Something for a newsletter of your particular professional association, modality association, or national association in psychotherapy;

Or: A comment or a thread in one of the **Somatic Perspectives LinkedIn** group discussions, facilitated by Serge Prengel: www.linkedin.com/somaticperspectives.com

Or: Possibly, a chapter for an edited book, on a particular theme, possibly like one of the series being published by Body Psychotherapy Publications (**BPP**):

www.bodypsychotherapypublications.com.

Or: Something to be published somewhere else, at some other time, in a different medium; or for a personal internet blog; or . . . maybe just for your personal journal.

What can you write about?

You can write about attending a recent Congress, or seminar, or about attending a different event; - or about your student thesis; - or your experience of writing your student thesis; - or a special or particularly interesting case history; - or an aspect of your personal therapy; - or about working with a particular client group; - or about a development of theory or practice; or - even about your reflections on the field of Body Psychotherapy.

How to get started writing professionally?

There is an article in the journal of Body, Movement & Dance in Psychotherapy www.tandfonline.com/doi/full/10.1080/17432979.2010.530060#.VBfsNC6wJRU (You can also find a free copy here.)

And there are some recent guidelines about how to write a professional Body Psychotherapy Case Study: www.eabp.org/researchcase-study-guidelines.php. There are also many articles on the Internet (in different languages) about how to write.

If you want any further assistance with where to publish, or with the process of editing, or re-editing, or with the complications of the publication process, the following people may be able to offer you some help.

They are all professional body psychotherapists, editors and writers:

Nancy Eichhorn: Nancy@NancyEichhorn.com

Jacqueline Carleton: jacarletonphd@gmail.com

Gill Westland: gillwestland@cbpc.org.uk

Jennifer Tantia: JFTantia@gmail.com

Courtenay Young: courtenay@courtenay-young.com

Sincerely,

EABP Publications Committee

<http://www.eabp.org/publications.php>

Squaring the Circle: Bridging the Gap Between Research and Practice About the EABP Collaborative Practice Research Network (CPRN)

The awareness of the importance of fostering different models of research, particularly those linked more closely to the actual practice of body psychotherapy and those encouraging a two-way communication between researchers and practitioners, has led to the creation of the EABP Collaborative Practice Research Network.

This is an exciting new initiative to provide a forum for dialogue, debate and the development of innovative and creative research methods and projects that assist clinical practice and help body psychotherapy (and/or somatic psychology) to develop an empirical underpinning of its professional practice.

The aim is to broaden knowledge of the field of body psychotherapy through communities of practice and clinical research. It explores how a CPRN can transform perceptions of psychotherapy research and practice, strengthen connections between members, and encourage continuous development and co-creation among participants. This important initiative is an opportunity to make a significant difference within our profession and to develop – together – the foundations of both scientific and clinical practice research.

Specifically, we are planning to explore and develop, at local and international levels, a variety of strategies to support practitioners' research and look at what types of research potentially provide a broadening of our understanding and practice of psychotherapy, and how various types of research advance, improve and extend our knowledge of body psychotherapy. We will do this by bringing together practitioners and researchers from around the world, both online and face-to-face, to discuss ways of bridging the gap between clinical practice and research.

The committee has organized two symposiums in conjunction with the 2012 and 2014 EABP Congresses. The next symposium will be held during the 15th European Congress of Body Psychotherapy in Athens Greece, 13-16th October 2016.

We would like to invite you to join us and become part of this exciting and innovative initiative. If you are interested please contact Sheila Butler and Herbert Grassmann - cprn@eabp.org

EABP Science and Research Committee - Sheila Butler, Herbert Grassmann (chairperson), Frank Röhrich, Maurizio Stupiggia, Joop Valstar, Courtenay Young and Jennifer Tantia www.eabp.org/research-scientific-committee.php

Strengthening links between practitioners and researchers at every stage of the process

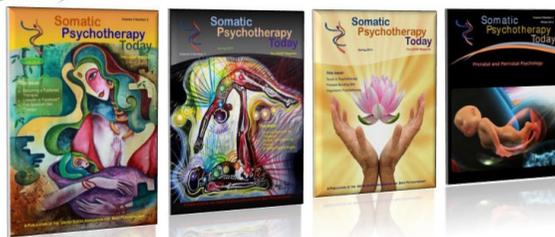
News:

The Society for Psychotherapy Research (SPR), an association devoted to the development and dissemination of research on psychotherapy has some exciting upcoming SPR events:

- *The International Annual Meeting in Philadelphia*, USA in June 2015 from 24th to 27th June.
- *The European Conference on Psychotherapy Research* in Klagenfurt, Austria, September 24th to 27th, 2015, and the planned 2016 International Meeting in Jerusalem, Israel in June 2016.

You might also like to browse the Psychotherapy Research Journal pages, especially the Special Issues and the online resources; there is a lot of information on the integration of theoretical, empirical and clinical knowledge in psychotherapy. See <http://www.psychotherapyresearch.org>

Somatic Psychotherapy Today

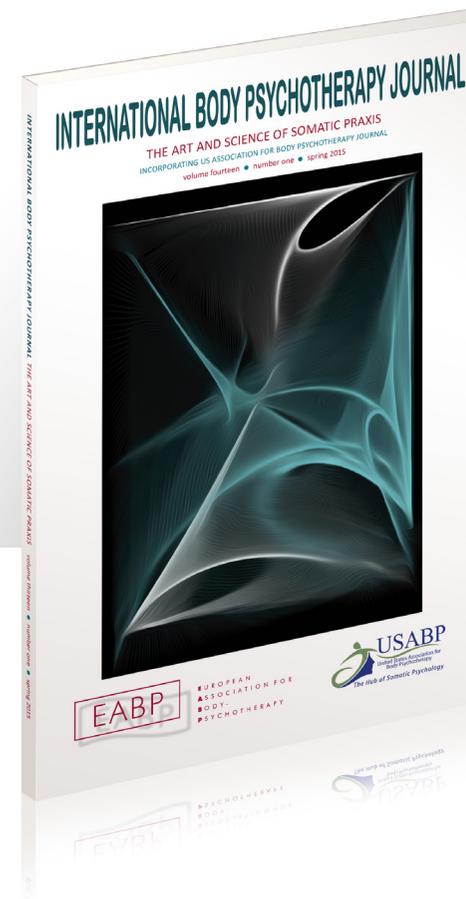


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The editors are eager to receive letters, particularly communications commenting on and debating works already published in the journal, but also suggestions and requests for additional features. A selection of those received will be published in the next volume of the Journal.

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Criteria for Acceptance

The Journal's mission is to support, promote and stimulate the exchange of ideas, scholarship and research within the field of body psychotherapy as well as to encourage an interdisciplinary exchange with related fields of clinical theory and practice.

First consideration will be given to articles of original theory, qualitative and quantitative research, experiential data, case studies, as well as comparative and secondary analyses and literature reviews. Submission of an article to the *International Body Psychotherapy Journal* represents certification on the part of the author that it has not been published or submitted for publication elsewhere.

Our Editor and reviewers will read each article with the following questions in mind:

- How does material in this manuscript inform the field and add to the body of knowledge?
- If it is a description of what we already know, is there some unique nugget or gem the reader can store away or hold onto?
- If it is a case study, is there a balance among the elements, i.e., background information, description of prescribed interventions and how they work, outcomes that add to our body of knowledge?
- If this is a reflective piece, does it tie together elements in the field to create a new perspective?
- Given that the field does not easily lend itself to controlled studies and statistics, if the manuscript submitted presents such, is the analysis forced or is it something other than it purports to be?

Authors' Guidelines

For submission details see www.ibpj.org

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Please consult the latest edition of the Publication Manual of the American Psychological Association.

Manuscript should be single-spaced in 10pt. type, with a one-inch (25 mm) margin on all four sides. Please include page numbers. Paragraph indent .5cm. The manuscript must be free of other formatting.

Order of information: Title, full authorship, abstract (±100-350 words), key words (3-5), text, references, biography (100 words). The biography should include the author's degrees, institutional affiliations, training, e-mail address, acknowledgment of research support, etc.

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Of course, you may wish to consult a more comprehensive resource about APA style guidelines, how to do in-line citations. As for how to find all the information that you need to make a citation, referring to the primary source you used will be best and most exhaustive. If you no longer have access to that, a quick Google search with the information that you do happen to have (book/article title along with author's name) will often provide the rest in the first few hits. Start by clicking on the first Google result, and by eye, search for the information that the citation machine website asks for specifically. Browse the next couple of links on Google if need be. If the information needed (e.g page numbers) can't be found in the first few hits, it is unlikely that it will be online at all.

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volume fourteen ● number one ● spring 2015

RESEARCH ISSUE

Guest Editor: Jennifer F. Tantia, PhD, BC-DMT

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at the 14th European and 10th International Congress of Body Psychotherapy:

The Body in Relationship: Self—Other—Society

Nancy Eichhorn, PhD



E U R O P E A N
A S S O C I A T I O N F O R
B O D Y -
P S Y C H O T H E R A P Y



Connecting professionals, exchanging expertise, enabling collaboration

Journal (ISSN 2169-4745)