
**INTERNATIONAL JOURNAL OF
NEUROPSYCHOTHERAPY**

IJNPT

VOLUME I - 2013

Aims & Scope

The International Journal of Neuropsychotherapy (IJNPT) is an open access, online journal that considers manuscripts on all aspects of integrative, biopsychosocial issues related to psychotherapy. IJNPT aims to explore the neurological or other biological underpinnings of mental states and disorders to advance the therapeutic practice of psychotherapy.

Our mission is to provide researchers, educators and clinicians with the best research from around the world to raise awareness of the neuropsychotherapy perspective to mental health interventions.

Article Categories:

In agreement with the scope of the journal, papers submitted must be associated with the neurological or other biological underpinnings of mental states/disorders, or advances in any biological/psychological/social understanding of interrelatedness and impact on psychopathology or normative mental states and how these advances in knowledge impact therapeutic practice.

Empirical Studies: Original research with solid practical and theoretical advances for neuropsychotherapy.

Case Studies: Case studies highlighting neuropsychotherapy theory and methodology in clinical application.

Articles: Theoretical articles using current research to advance theory, or a description of current theory (Theory). Methodological articles describing new approaches or changes to existing methods in neuropsychotherapy (Methodology), are welcome. Other articles include: Perspectives (brief accessible pieces covering a broad array of topics relevant to neuropsychotherapy); Applied NPT (brief accessible pieces describing the authors clinical application of neuropsychotherapy);

Review Articles (Literature Reviews): Meta-analytical papers and other such review research critically evaluating previously published material directly related to Neuropsychotherapy.

Letters & Research Notes: Short descriptions of important current research findings associated with, and important to, a biopsychosocial understanding of psychopathology and therapeutic interventions.

Submission Guidelines

Research papers should be formatted to the general IMRAD layout and follow APA style. For a review of acceptable format you can visit the International Committee of Medical Journal Editors articles on Preparing a Manuscript for Submission to a Biomedical Journal.

Manuscripts must be sent via email to editor@IJNPT.net and accompanied by a cover note, which should include the following information:

- A full statement to the editor, about all submissions and previous reports that might be regarded as redundant publication of the same or very similar work. Any such work should be referred to specifically and referenced in the new paper. Copies of such material should be included with the submitted paper to help us address the situation.
- A statement of financial or other relationships that might lead to a conflict of interest, if that information is not included in the manuscript itself.
- A statement that the manuscript has been read and approved by all the authors, and that each author believes that the manuscript represents honest work.
- The name, address, and telephone number of the corresponding author, who is responsible for communicating with the other authors about revisions and final approval of the proofs, if that information is not included in the manuscript itself.

Open Access Policy

The Neuropsychotherapist provides open access to the International Journal of Neuropsychotherapy and all of its content on the principle that making research freely available to the public supports a greater global exchange of knowledge, increased readership, and increased citation of our author's work.

Peer-Review Process

After an initial filtering by the Editor, manuscripts will be reviewed by two recognised experts. Peer reviewers will give recommendations to the editors as to the validity, coherence and originality of the manuscript and if it should be accepted, revised, or rejected. Final decisions will be made by the Editor in Chief in collaboration with advisors. The review process is at the total discretion of the editors and publisher.

Submission Fee & Copy Editing

This journal is open access, free to the public to maximise reach, and does not generate any revenue for the publisher. There are, however, costs associated with managing and publishing this journal and the publisher covers these costs except for the cost of copy editing. Successful submissions are charged a copy editing fee of \$0.04/word so our experienced academic editors can ensure the highest standard of manuscripts. This is the only fee charged to the author(s) and is set at an extremely generous rate compared to many other open access journals. Articles should be submitted as a Word document for ease of editing and commenting by reviewers. All final editing will be passed by the author for final agreement before publishing.

Redundancy & Copyright

Manuscripts that have been published in another journal or citable form will be considered redundant and will not be considered. Authors are responsible for ensuring material submitted does not infringe existing copyrights or the rights of a third party. We do not require the transfer of copyright to be published in our journal. We only require an agreement for the rights to publish, as we do for our magazine and website. This standard agreement is found here: Publishing Agreement. This form must be completed and accompany your submission.

Conflict of Interest

When authors submit a manuscript, whether an article or a letter, they are responsible for disclosing all financial and personal relationships that might bias their work. To prevent ambiguity, authors must state explicitly whether potential conflicts do or do not exist. For a full explanation of potential conflicts of interest please refer to the ICMJE Conflicts of Interest page. We have adopted the Uniform Disclosure Form to make it easier for authors to report potential conflicts of interest. This form must be completed and an electronic copy sent to us via email with your submission (do not send it to ICMJE). The Disclosure Form can be downloaded directly from here: http://www.icmje.org/coi_disclosure.pdf

Citation Linking

The Neuropsychotherapist is a publisher member of Crossref, the official DOI registration agency for scholarly publications. Articles published in the IJNPT will be referenced with their own unique digital object identifier, providing the article with a persistent, actionable identifier for that piece of intellectual property. We encourage authors to include DOI's in their reference list when a DOI is available for a particular citation. Our online publication will provide hyperlinks with each specified DOI.

Video Abstracts & Introductions

We are encouraging authors to produce video abstracts or introductions to their papers. This is by no means compulsory, but is a highly effective way to engage readers and effectively communicate the core elements of your paper. The video should be less than five minutes long and communicate the main thrust of your paper. The video will be displayed as small as 320 x 240 pixels, so no small text or diagrams that would be difficult to see at this resolution. You must not use anything in your video that you do not have copyright to (music, images, insignias, and so on). The video will be considered to be under nonexclusive copyright terms. If you are interested in producing a video abstract or introduction please let us know with your submission.

Further Information

We follow the International Committee of Medical Journal Editors guidelines for biomedical journals. For a complete list of Uniform Requirements for Manuscripts please click on the ICMJE logo below.

Table of Contents

Givers and Takers: Clinical Biopsychological Perspectives on Relationship Behavior Patterns	31
<i>Robert A. Moss</i>	
Alexander Luria - life, research and contribution to neuroscience	47
<i>Maria Ilmarovna Kostyanaya & Pieter Rossouw .</i>	
A Clinical Biopsychological Theory of Loss-Related Depression	56
<i>Robert A. Moss</i>	

EDITORIAL TEAM

CHIEF EDITOR
Pieter Rossouw, Ph.D.

ASSOCIATE EDITOR
Richard Hill

MANAGING EDITOR
Matthew Dahlitz

CHIEF COPY EDITOR
Geoff Hall

PUBLISHER
Dahlitz Media

ADVISORY BOARD

Jack C. Anchin, Ph.D.
Malek Bajbouj M.D.
Louis J Cozolino, Ph.D.
Todd E Feinberg M.D.
Stanley Keleman, Ph.D. hc SK
Jeffrey J. Magnavita, Ph.D., ABPP
Iain McGilchrist, M.D., MRCPsych
Georg Northoff, M.D., M.A., Ph.D.
Allan N. Schore, Ph.D.
Mark Solms Ph.D.
Paul G. Swingle, Ph.D.
Jonathan H. Turner, Ph.D.
David Van Nuys, Ph.D..

DISCLAIMER

The International Journal of Neuropsychotherapy (IJNPT) ISSN 2202-7653, is an open access online journal published by Dahlitz Media Pty Ltd. The publisher makes every effort to ensure the accuracy of all the information contained in this publication. However, the publisher, and its agents, make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the information herein. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of, or endorsed by, the publisher. The accuracy of the information in this journal should be independently verified with primary sources of information. The publisher shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the information in this journal.

Our mission is to provide researchers, educators and clinicians with the best research from around the world to raise awareness of the neuropsychotherapy perspective to mental health interventions.

For further information about this journal and submission details please go to

www.neuropsychotherapist.com/submissionscall/

GIVERS AND TAKERS: CLINICAL BIOPSYCHOLOGICAL PERSPECTIVES ON RELATIONSHIP BEHAVIOR.

Robert A. Moss

Bon Secours St. Francis Hospital

Abstract

To date, limited progress has been made in advancing a comprehensive biopsychological model to explain behavior patterns in human relationships. This paper describes such a model. A simplified description of a theory of cortical functioning is presented, followed by a discussion of two patterns of human relationship behaviors that are explained within the context of the model. A comparison of the current model and the dominant Big Five model of personality traits is then briefly discussed. Conclusions focus on the need for future research to determine the effectiveness of a clinical biopsychology approach, including the accuracy of the relationship patterns.

Keywords: Type-G, Type-T, giver, taker, clinical biopsychological model, relationships, neuropsychotherapy, social neuroscience, dimensional systems model.

Correspondence concerning this article should be addressed to Robert A. Moss, Bon Secours St. Francis Hospital, 1 St. Francis Drive, Greenville, SC 29601. E-mail: rmoss@emotionalrestructuring.com

Moss, R. A. (2013). Givers and takers: Clinical biopsychological perspectives on relationship behavior patterns. *International Journal of Neuropsychotherapy*, 1(2), 31-46. doi: 10.12744/ijnpt.2013.0031-0046

Psychotherapists are well aware that many, if not most, individuals seen for therapy have current and past relationship issues. While the importance of social factors in psychological disorders such as depression is recognized by all psychotherapy approaches, this perspective forms the specific basis of interpersonal therapy (Klerman, Weissman, Rounsaville, & Chevron, 1984). Understanding what motivates others, the reasons for other people's actions, and how to deal most effectively with others in relationships is important to clients. A brain theory that could explain the rules defining the relationship behaviors of significant others would thus be of considerable value in neuropsychotherapy—not only because it would allow for the presentation of accurate schemas, but also because it would enable suggestions to be made on the most adaptive ways to deal with others.

Social neuroscience was first described by Cacioppo and Berntson in 1992, since when it has become a rapidly developing field, aided by the widespread use of imaging techniques. Adolphs (2010a) provided a thoughtful review on the conceptual challenges and directions of this new area. He noted the difficulty in determining the neurophysiological basis of the “social brain” since no brain structure or subpopulation of neurons operates in isolation. Hence, there is a need to account for the manner in which distributed neuronal representations produce explicit and relevant social information to guide behavior. However, despite the dominant discourse in cognitive and affective neuroscience, that it is known how psychology and biology causation works—this is not the case, as Miller (2010: 734) critically observed, when he stated that the “contact point(s) between the psychological mechanisms and the biological mechanisms need to be identified and explicated.” Clearly, this requires a theory that describes the exact manner in which subcortical and cortical central processes interact with autonomic and hormonal systems, to produce social behavior.

Personality psychology has attempted to provide taxonomies of traits as a means to better understand individual differences in motivation, behavior, and cognitions tied to relationships. In this context, a complete overview of the emerging subspecialty of personality neuroscience has been recently presented by DeYoung and Gray (2009), in which they discussed the Big Five model of Costa & McCrae (1992). This is the most widely used and dominant taxonomy and one, they believe, which serves as a useful categorization scheme for personality neuroscience. The five factors of this model are: extraversion, neuroticism,

agreeableness, conscientiousness, and openness/intellect. Based on their review of the literature, DeYoung and Gray (2009) suggested that brain structures and neurotransmitter systems are differentially involved in these five factors and they posited that regularities in the functioning of the relevant brain systems account for personality traits.

Some support for these predictions is found in a structural magnetic resonance imaging (MRI) study by DeYoung et al. (2010). However, there are some criticisms that can be made with regard to this approach in personality neuroscience: first, the five factor model is not derived from a neuroscientific theory; and, second, neither volumetric nor functional neuroimaging of brain areas can explain the manner in which those areas operate to produce any given behavior—thus a correlation between a factor and a brain area provides no insight as to the cognitive, affective, motivational, or social aspects involved, with the result that no meaningful information is derived for the purposes of psychotherapy. For example, the finding that someone ranks high on extraversion, which is associated with increased size in the medial orbitofrontal cortex, provides little help in explaining to a client how to deal with such a person.

A theory of how learning and memory occur within the cortex, and how this interacts with subcortical areas, has recently been described (see, e.g., Moss, 2006, 2013a; Moss, Hunter, Shah, & Havens, 2012). This theory—called the dimensional systems model (DSM)—purports that the cortical column (i.e., the macrocolumn) is the binary unit (bit) involved in processing and storing all higher cortical information. The theory has also been applied to psychotherapy (Moss, 2001, 2007, 2010, 2013b), where it is termed the clinical biopsychological model (CBM). Based on this model, clinically relevant patterns of relationship behaviors have been identified and described. Notably, in the context of this author's practice, the model has proved very useful to clients both in understanding individuals with whom they have relationships, as well as determining the most effective manner of dealing with those individuals. The aim of this paper is to describe these relationship patterns.

Clinical Biopsychological Model

A brief overview of the CBM should assist the reader in understanding the more detailed discussion that follows. The model views all human behavior as motivated by a prime directive to maximize positive and minimize negative emotional experiences. This has obvious survival benefit in that conditions leading to positive emotional states are those in which biolog-

ical needs are met. In contrast, negative states occur when an individual is not having needs met, or is in danger. Of particular importance is to understand that in the DSM, subcortical structures are seen as being responsible for the perceived valence and physiological components of emotions. Subcortical to cortical projections (including dopaminergic, serotonergic, noradrenergic and cholinergic systems), and hormonal/neuropeptide release, strongly influence cortical activities including memory formation. Nevertheless, the DSM suggests that the location of all complex sensory and motor relationship memories is at the cortical level: This means that all learned components of relationship behaviors across a lifespan are a direct function of cortical memory storage.

For example, the role of the amygdala in psychological phenomena such as fear conditioning has clear support (LeDoux & Phelps, 2010). The role of the amygdala has also been suggested in social cognition (Adolphs, 2010b), including reward learning due to connections with the prefrontal cortex and ventral striatum. As LeDoux and Phelps (2010) note, both the fast route from the sensory thalamus and the slower route from the sensory cortex converge at the same locations in the lateral amygdala. The involvement of the sensory cortex as both the location of emotional memory storage, and the source by which activation of the lateral amygdala occurs upon activation of that memory, is consistent with the theoretical model discussed here—specifically, that the right parietal area has been implicated in processing emotional and social sensory input (Adolphs, 2001; Shutz, 2005). Based on the DSM, the receptive columns of the right parietal area, in connection with the temporal and occipital lobes, are those involved in the rapid processing of ongoing non-verbal social stimuli that allow efficient fluid social interactions. For this reason, lesions of the right parietal cortex and the right amygdala can lead to similar deficits. Damage to the right parietal cortex can lead to a failure to activate the amygdala due to the loss of the columns which, via learning, allowed non-verbal emotional processing to occur. Furthermore, damage to the right amygdala would have a similar overall behavioral effect since no emotional response could occur in response to cortical column activation; in this case, there is no output from the amygdala to activate the lateral hypothalamus associated with autonomic responses or the paraventricular hypothalamus associated with hormonal (hypothalamic-pituitary-adrenal axis) responses (LeDoux & Phelps, 2010).

The DSM indicates that cortical arousal is necessary for strengthening synapses among the columns tied to

new memories. It is also consistent with the view that the hippocampus is the “pacemaker” in a hippocampus-thalamus-cerebral cortex-hippocampus circuit (Moss et al., 2012). Maintenance of activity in the circuit allows for increases in ionic concentration levels and increased neurotransmitter storage at the synaptic level among the involved columns—a necessary component is thalamus-cortical arousal via input from the reticular activating system via the thalamic reticular nuclei (Moss, 2006). Arousal can be enhanced both during positive and negative emotional arousal; for example, amygdala input to the hippocampus can serve as a means to increase hippocampal activity and enhance memory storage at the cortical level.

The two heritable components involved in social cognition are genes and culture (Adolphs, 2001). There are innate, biological factors whose trajectories are strongly influenced by an individual’s cultural and social context—temperament, for example, has been defined as a pattern of responses across many occasions in a given type of incentive condition (Bates, Goodnight, & Fite, 2010). These authors also noted some clear indications of temperament and environmental interactions that determine expression. An example of such an interaction is in relation to novelty distress, where gentle maternal control appears to promote the development of pro-social behaviors. By comparison, harshness does not seem to promote the development of pro-social behavior in low novelty distress children. In this context, the DSM suggests that the cultural and social learned components are a function of cortical processing and memory storage.

The cortical dimensions of the DSM that primarily impact on social functioning involve internal–external, action–reception, and global–analytic processing. Internal and self-referential processing involves the medial areas of the cortices while external or environmental processing involves the lateral cortices. The medial cortical areas receive input from and provide input to subcortical structures. Panksepp (2010) described the affective foundations of “core consciousness” and “core self.” The medial cortical internal/self-referential columns that interconnect with the affective systems he highlighted are consistent with such a conceptualization. On the other hand, external stimulus information, including information involving social interactions, is processed and coded in the lateral cortex. The DSM suggests that transitional regions between the medial and lateral cortex (e.g., the insula) are the locations for coding association memories in a combination of “self as related to other” processing and memory.

Receptive sensory columns in the temporal, parietal and occipital lobes act in a bottom-up (starting from the thalamus) feed-forward manner (Moss, 2013). This means information from the senses activates stored memories automatically, and these posterior cortical memories can then activate subcortical systems such as the amygdala and the mesolimbic dopamine system; which subcortical area is activated will depend on whether the activated memories are positive or negative. The frontal columns are involved with any action that occurs, often in response to environmental stimulation. Medial frontal columns activate internal motivation/drive action and provide active feedback to subcortical structures, including the ventral striatum. Lateral frontal columns are involved in the analysis, planning, and motor expression of responses in the external environment.

The two cortices are viewed as semi-independent functioning minds. Within the suggested parallel processing design, whichever side can best respond to an ongoing situation is the side that assumes control of the ensuing response. Both hemispheres receive similar sensory input. The left cortex processes sensory information in a detailed manner, with the result that it is slower than the right cortex, which processes the information much faster, but in a global, less detailed manner. Exchange of information occurs between the sides. From a developmental perspective, there is initially only very limited information exchange between lobes within each side, and between the hemispheres. This allows each cortical area to fully develop its memories and associated processing prior to any influence from more distal areas. Additionally, left hemisphere functions (receptive and expressive speech, for example), will develop more slowly than those of the right hemisphere (non-verbal emotional analyses and responses, for example), since there are a greater number of cortical columns and interconnections associated with left hemisphere functions. It should also be noted that the right hemisphere's global processing allows for faster responses if confronted by outside danger; therefore, that this side is best equipped to respond early, and will assume behavioral control while in a negative emotional state. This point is important in reference to relationship behaviors since the right cortical interpersonal relationship patterns discussed in this paper would be most pronounced when an individual is stressed, pressured, fatigued, and/or distressed.

The left cortex is the primary handler of verbal language functions, which are highly detailed. The left posterior areas are involved in memory storage and understanding both spoken and written language,

while the left frontal lobe controls spoken language, including the motor memories of language. Thinking verbally and forming interpretive schemas are left cortical processes sometimes referred to as the verbal interpreter. In contrast, the right cortex is involved in many less detailed, global functions, including non-verbal emotional analyses and responses. The right posterior areas are involved in memory storage and understanding emotional behaviors shown by others, as well as the storage of external sensory memories (sight, sound) and internal sensory memories (visceral responses) tied to emotions. The right frontal lobe is involved in emotional expressions, including the motor memories of such expressions.

If it is accurate, the DSM can explain how it is possible both to think verbally in a particular way about a situation and yet feel differently about the same situation. Since the sensory aspects of non-detailed emotional processing occur in the right posterior hemisphere, the verbal interpreter in the left frontal lobe would have no means (i.e., via interconnecting neural tracts) to directly control emotional reactions. In other words, it is not possible to verbally and logically control emotional perceptions and reactions.

The model indicates that interactions with one's environment are guided by the desire to activate positive and deactivate negative emotional states, which are largely defined by the emotional memories stored in the right posterior cortex. An individual may attempt to exert control over some aspect of his/her world via behavioral responses controlled by the left frontal lobe (i.e., by verbal expression), or the right frontal lobe (i.e., by emotional expression). Thus, right frontal non-verbal emotional responses can best be described as involving behaviors of fight, freeze or flight; for example, attack, where the source of a problem is resolved or removed, otherwise escape, or avoid the source. The greater the incongruence between one's emotional and cognitive state (i.e., think/feel conflict), the more tightly one will attempt to control the environment, including relationship interactions, with the result that one's behavioral responses to environmental situations will be less coordinated and regulated. There will a tendency to show either an over-regulated, logical, verbal response (unemotional) or an under-regulated, emotional response (over-emotional), with the side controlling the current behavior of the individual inhibiting the expression from the opposing hemisphere. The greater the congruence (i.e., thinking and feeling being aligned), the more likely there will be a coordinated response in which emotional and verbal expression are consistent and appropriate.

Type-G (Giver) and Type-T (Taker) Relationship Patterns

Moss (2001) suggests there are two distinct but basic patterns by which individuals have learned to activate positive feelings and deactivate negative ones within relationships. These two patterns involve either the giving (Type-G) or taking (Type-T) of power, control, attention and/or things. At the simplest level, this is consistent with the basic motivational rule, and refers to both sensory emotional memories and actions, that is, how one feels and how one behaves in relationship interactions. Although hereditary/genetic factors such as temperament play a role in the development of one pattern over another, a major influence involves each person's own learning history. This learning history involves what was most effective in achieving positive consequences and avoiding negative consequences with all influential people in an individual's early social system. Because these early emotional memories define which of these patterns results in positive or negative internal states, once developed, an individual continues to relate to the current social system in the same basic manner of giving or taking as he or she learned in childhood.

Type-T individuals experience positive feelings in relationships by taking power, control, attention and/or things, and they experience negative emotions when having to give at their own expense. Therefore, they give only if something more desirable can be obtained or maintained. For a Type-T desiring attention more than anything else, this same person may be willing to give up direct power and control. In such a case, this person may be very dependent and whiny, often being in the position of engaging in behaviors that would logically appear very maladaptive. The opposite case is one who desires power and control more than attention and therefore may be willing to let others receive the attention publicly as long as he or she can "pull the strings."

In contrast, Type-G individuals activate positive feelings in relationships by giving power, control, attention and/or things, and experience negative feelings if they have to take things at someone else's expense. They can behaviorally "take" in certain situations, but have to develop specific rules to do so; these rules allow them to define for themselves when it is acceptable to take from others. However, the major positive experience for this type occurs when he or she spontaneously decides to give in a way to someone they feel has done a good job, and the person on the receiving end demonstrates a genuine appreciation for what has been done. The most negative experience for

this type is a situation where the giver has to accept from someone for something he or she has typically done, has no means to repay what was done, and is made to feel guilty due to statements from others.

Given a parallel processing model of the brain in which non-detailed emotional memories are stored in the right cortex, and the prime directive of the system is to maximize the positive and minimize the negative emotions being experienced, the development of these patterns, which reflect the motivation for the behaviors seen in each type, is considered logical. The factors responsible for the ways in which a person is able to have positive and negative emotions stimulated are the sensory emotional memories, and these frontal action memories are in turn responsible for the motivation to maintain the behavior patterns.

Emotional memories are stored very early in development and are independent of the verbal-thinking process. As a result, these emotional memories serve to guide the future memories that develop since an attempt will be made to maximize the positive and minimize the negative emotions. Obviously, the best way to maximize positive feelings is to stimulate the stored positive memories and not stimulate the stored negative memories. Once an individual stores memories that are associated with either a pattern of giving or taking to activate positive emotions, it is logical that this pattern will continue and intensify.

Inside the brain, the columns tied to emotional memories form circuits. Based on these emotional memories, the right and left frontal regions will develop their own circuits of columns, which guide a person's actions and which can, for example, activate or deactivate the non-detailed emotional memories based on environmental sensory inputs to the right posterior hemisphere. Once established, it is likely that the frontal columns controlling behavior tied to old emotional memories will be the first employed in responding to new environmental stimuli, leading to either positive or negative feelings. Thus, it is likely that patterns tied to what triggers desirable and undesirable emotions—as well as how these are behaviorally controlled—will be maintained.

Perhaps the best way to explain this is to take the left hemisphere's development of language abilities. If the human infant has an intact brain, auditory information arrives in its raw form as input to the primary auditory area in the left temporal lobe. Over the first year of life, the infant is exposed to what will become his native spoken language. Based on the current model, the cortical columnar arrangements associated with the sounds of the language (i.e., the phonemes,

or basic sound units of speech) constitute the first step in language development. Over time, the phonemes are connected neurally in the posterior cortex with word columnar arrays that later become associated with multi-sensory concepts; that is, learning takes place based on numerous “phoneme columns” activating one or more higher-order columns. The ability to produce sounds and sound sequences (e.g., “ma-ma”) occurs when the “phoneme columns” in the posterior cortex connect to the premotor columns in the frontal lobe. During the first years of life, this develops into the ability to understand and speak one’s native language. If one learns a second language as an adolescent or adult this process occurs in reverse order; that is, one first learns the words and their associated meanings, not the individual phonemes. Except in the case of brain damage to the left cortical areas of the brain responsible for speech, one’s native—or first—language is never lost, and one is never truly bilingual in relation to the sound system of a second language.

The right hemisphere’s development of non-detailed emotional analysis and expression follows a similar pattern, although it occurs more quickly than language development. Receptive emotional analysis (i.e., posterior cortex) precedes expression (i.e., frontal lobe). Initially, voice and physical contact/facial expressions of caretakers are encoded in columnar arrays in the right posterior cortex. Based on associations with positive consequences (such as being fed, having a diaper changed, or being cuddled in a secure manner), or negative consequences (such as being shaken, yelled at, or ignored), when these receptive memories are later activated by similar behaviors shown by the same or other individuals, the child “feels” either positive or negative emotions. Similarly, the right premotor cortex develops learned behavioral expressions (i.e., columnar arrays) which tend to maximize positive and minimize negative emotions based on one’s environment. Barring damage to the involved right cortical areas, one’s “native emotional language” remains, and is never forgotten.

Behavior patterns develop in childhood. Thus, in our childhood years it is expected that we will develop patterns that result in the most effective means of increasing positive and decreasing negative emotions in any particular situation. Our parents and siblings have done likewise. As we look at our own family system, therefore, it should be no surprise that each person develops idiosyncratic behavior patterns even when we share the same basic background. For example, your older brother may have learned that the most effective way to increase positive emotions and to decrease negative emotions in your family was to be dependent

and whiny. But in this case it would be difficult for both you and your brother to maximally capitalize on all the available control, attention and material things within that same system by displaying similar behaviors. It is likely, therefore, that you would develop a dissimilar pattern—perhaps by being domineering and independent. Regardless of the exact pattern you or I develop, it is important to bear in mind that the behavior patterns we develop are always directed towards maximizing the positive and minimizing the negative. Our family system and, later, the greater social system, constrain what will work and what will not work for an individual in order to receive positive and avoid negative consequences; nevertheless, early memories of what has worked will remain throughout one’s lifetime. Given this fact, it seems reasonable to conclude that we would maintain our early patterns of behavior.

Taking this point a step further, it is hardly surprising that in most circumstances, one’s native language is used in any social interaction. This would apply in new and old relationships—in relationships with friends, with one’s spouse, and with individuals at school or work. Consequently, when emotional communications in relationships are considered, should it not also be expected that one would continue to employ that pattern which was learned over the course of one’s developmental years?

The most adaptive pattern is one in which an individual is able to give and take equally well, in which case there would also have to be the equal possibility of frontal control, leading to giving or taking, depending upon its appropriateness in any particular situation. This also requires inter-hemispheric congruence—but in fact neither of these conditions are possible for us as we live out our early years, because congruence would require being reared in an environment by people able to communicate consistently congruent verbal and emotional information. This is the only method by which our brains could develop and maintain inter-hemispheric congruence. Thus, we are presented with an impossible situation—in other words, if we are ever to have perfect inter-hemispheric congruence, first there must be people with perfect inter-hemispheric congruence. Going one step further, if perfect congruence did exist, an individual with perfect congruence would have to be able to filter the incongruence communicated from others. For example, an interaction with someone who verbally communicates one thing while emotionally expressing conflicting information necessarily would result in that “perfect” person experiencing incongruence.

Logically, therefore, since perfect inter-hemispheric congruence is humanly impossible, it is not a reasonable goal in psychological treatment. This does not mean that congruence—which is a reasonable goal in treatment—cannot be improved. Theoretically speaking, with improved congruence an individual should be better able to give and take equally well. The end result is that the behavior pattern of giving and taking should become less pronounced since the person is being more realistic in attempts to control the world. Nevertheless, the basic pattern remains: the greater the degree of incongruence, the less well the individual can engage in the behaviors characteristic of the opposite type.

Based on the foregoing discussion, it may be concluded that the patterns tied to either type are maladaptive. This is an important point because clients will ask if it is possible for one type to change to the other. The answer to this is definitely “no”. Moreover, even if it were possible, it would not be a reasonable treatment goal because both patterns are maladaptive. The actual goal for everyone should rather be movement towards adaptive functioning, which involves being able to give and take equally well.

The following are two examples of how each type can be maladaptive. In the first, the client is a Type-G who has developed a severe, chronic pain problem. In his past, he was the person in the family who provided the income and was very industrious around the house. However, he has lost his ability to continue doing the manual labor he did at his job and at home. He experiences extreme guilt when asking his wife or anyone else to assist him financially or with chores. As a result, he delays in seeking disability benefits, and when turned down, feels uncomfortable in appealing this decision since he feels he has been told he should still be able to work. He goes without many things because he feels uncomfortable approaching any agencies, family, or friends for assistance. In this situation, this person’s inability to take comfortably actually restricts adaptive behavior.

The second example is a Type-T person married to a submissive spouse who is unwilling to set limits. In this situation, he has become more and more abusive towards his wife over the years. She left him twice, but both times she left him he talked her into returning, each time showing only brief improvements in his behavior. Since he has taken all available power and control emotionally possible, and has escalated his physical abuse of her as well, there are very few limits left to push to allow him to feel he is taking more power and control. He finally kills his wife in a moment of ex-

treme rage. Once again, we see maladaptive behavior.

As the clinician first looks at these patterns, there will be a tendency to see the “trees” and not the “forest”. In other words, it will initially be difficult to reconcile the fact that extremely different behaviors can reflect the same basic type. In like manner, it will be difficult to accept the fact that two individuals demonstrating some similar behaviors can reflect different basic types.

For example, one can see a Type-T individual who is socially adept, highly successful, and publicly regarded as a philanthropist. In contrast, another individual may be obnoxious, complaining, and extremely dependent, with multiple psychiatric hospitalizations. In reference to Type-G individuals, one may be strong-willed, opinionated and demanding, while another may be submissive, compliant and barely noticeable.

There are two dimensions along which each basic type can vary. These dimensions can assist in recognizing the basic patterns. It is very important to keep in mind that the basic patterns are the focus of attention, not the subdivisions of the basic types. The distinction of Type-G versus Type-T is best viewed as a dichotomy, since the basic patterns are so pronounced. The greater the hemispheric incongruence, the more pronounced the patterns become. The dimensions discussed within each of these basic groupings vary along continuums and, as such, are not independent and mutually exclusive.

The two behavioral dimensions for each basic type are (a) socialized–under-socialized and (b) domineering–submissive. The socialization dimension simply refers to the extent to which an individual has learned socially acceptable ways to activate positive feelings and deactivate negative ones in relationships. The dimension of dominance refers to the extent each type maintains control in relationships.

With these aspects in mind, prototypes of individuals falling at the extreme end of each continuum can be formulated. For example, domineering/socialized Type-G individuals would be strong-willed and ethical, with clearly defined rules. They would tend to be competent and conscientious workers and, as supervisors, would be fair and loyal towards both the company they work for, and their subordinates. They would be the type of people willing to work with others, not expecting anyone to do what they would be unwilling to do themselves. Although dominant/socialized Type-G individuals would be quite self-sufficient, assuming much responsibility in the home and community, in religious organizations or at the office, they

would not be overly attention seeking, and would feel uncomfortable being too much in the limelight. Thus, when recognized for their achievements and contributions, they would be prone to giving credit to others for their own accomplishments. They would feel more comfortable having people say nice things about them rather than to them, to avoid feelings of conceit for accepting a compliment.

Dominant/undersocialized Type-Gs would be relatively rare. They would be identical in many ways to the socialized dominant type; however, their rules would be illegal or inappropriate, from a cultural point of view. Perhaps the best example would be a stereotypical Mafia godfather who is rule-governed and fiercely loyal, and yet engages in illegal activities.

Submissive/socialized Type-G individuals would be those people who try constantly to please everyone and avoid conflict—they would be perceived by others as generally nice people. Although they would not necessarily volunteer to do much, this type would have be unable to say “no” to the requests of others, no matter how inconvenient. They would do a competent job when agreeing to do something, but would avoid too much responsibility due to fear of conflict or feeling that someone else could do a better job. As spouses they would be frustrating, due to their desire to avoid any conflict, often “pulling into a shell”. They would be the type of people to walk away from any situation they viewed as involving conflict.

Submissive/undersocialized Type-G’s would often be escapist, engaging in socially unacceptable behavior that they see as not harming others. These types would tend to be invisible in society—an example might be a person who quietly abuses alcohol or marijuana. These individuals would tend to be “homebodies” and hermits or, if homeless, isolated and aloof. These people would probably only marginally function in society and would seldom seek help or attention.

Dominant/socialized Type-T individuals would have the strong need to control others directly, but do this in generally socially acceptable ways. These people would have the ability to be extremely outgoing and socially adept, particularly when first met. Their charisma is obvious if there is something to be gained in the situation. These individuals often do a great deal for public recognition and glory in praise from others. However, those close to them are aware of how different their behavior is behind closed doors. These people are often temperamental and demanding, often being cold or verbally abusive when not immediately getting their way.

A dominant/undersocialized Type-T is by far the most dangerous type. These individuals desire as close to total control in relationships as possible and are willing to go to extreme levels to obtain this control. They might well lose jobs due to an inability to take directions from others, and they may engage in blatantly illegal activities. Such individuals are those who abuse family members verbally, physically, and sexually. After blowing up, this person may actually be apologetic or otherwise nice for a brief time, but the pattern will soon repeat. If intoxicated, these types are the “mean drunks” and often get into fights. Such individuals have no real loyalties to anyone, being willing to use “friend” and stranger alike. In relationships where these people have mutually perceived power, they are the ones who will escalate physical, emotional and sexual abuse over time. In a situation where the partner is seen as the one with ultimate power and control, these individuals escalate their own aggressive behavior until it reaches a point when the partner will either walk away or attack.

A submissive/socialized Type-T individual is one that is primarily looking for attention. This type may be confused for a giver since they often are involved in many community activities. However, such individuals will always make their presence known to others and are often considered the “life of the party.” With those close to them, however, they often induce much guilt since they play the role of the martyr. Although these people may do a great deal for others publicly, those close to them actually handle the mundane day-to-day matters of the household and family.

The submissive/undersocialized Type-T’s are those that receive attention in socially inappropriate ways. For example, these individuals are often the ones threatening suicide or self-mutilating, and have a high likelihood of being placed on a number of medications when treated psychiatrically. Some of these people often claim to have a number of psychiatric diagnoses and physical complaints—not only do they claim to be the victim and martyr but they go to great lengths to play out that role.

Only a brief description of each type has been presented here; however, it is hoped that the information is sufficient to see how these types can theoretically exist. If these descriptions are valid, the ramifications could be widespread in the areas of social and clinical psychology. Whilst staying consistent with cognitive behavioral approaches, these descriptions are new schemas to explain the actions of others with whom there have been problems. These new schemas have been proposed to assist in decreasing the perceptions

of personal responsibility/inadequacy and externalizing the difficulties tied to past memories. A very important aspect is that they serve to assist in deciding the most effective ways of dealing with individuals in current relationships. This information is included as Appendix A and is taken directly from the treatment manual by Moss (2001).

The Big Five and CBM Relationship Behavior Patterns

In relation to the Big Five, there is no component that corresponds to the Giver/Taker concept. It is this concept that both explains the motivation (to activate positive and deactivate negative emotions) and demonstrates that sensory emotional memories in the right cortex are those primarily involved in defining what is perceived as positive and negative; specifically, it is the right frontal action columns that determine the affective and behavioral responses of Type-G and Type-T patterns. However, the behavioral dimensions of socialized–undersocialized and domineering–submissive are closer to the Big Five personality traits.

John and Srivastava (1999) provided the distinctions of the five factors as follows: extraversion is associated with being talkative, assertive, and energetic; agreeableness is associated with being good-natured, cooperative, and trustful; conscientiousness is associated with being orderly, responsible, and dependable; neuroticism is associated with being neurotic and easily upset without calmness; and intellect/openness is associated with being intellectual, imaginative, and independent-minded.

A brief analysis of how the five factors relate to the dimensions and prototypes previously discussed should assist in seeing the similarities and differences in the information conveyed by the Big Five model and the CBM.

As a group, Type-T individuals are expected to be high in extraversion and low in conscientiousness. This is based on the fact that “taking” in relationships typically requires an active behavior pattern and rules tend to prevent one’s ability to maximize gains. The dominant/socialized and submissive/socialized individuals would tend to be higher in intellect/openness, particularly in relation to being imaginative and independent-minded. Those who are in the submissive/socialized category are expected to be higher in agreeableness. Dominant/undersocialized and submissive/undersocialized individuals are expected to be higher in neuroticism and lower in agreeableness. This is based on an assumption that individuals in both categories tend to get distressed and easily upset, while

failing to be cooperative and trustful.

As a group, Type-G individuals are expected to be high in conscientiousness and agreeableness. As indicated, these individuals desire to be seen as good and not bad, meaning that they desire rules, as well as wanting to please others. Submissive Type-G individuals are expected to be low in extraversion and higher in neuroticism. This is based on the expectation that they avoid conflict and are uncomfortable being the center of attention, while being sensitive to criticism and easily hurt. Domineering Type-G individuals are expected to be higher in intellect/openness, particularly in relation to being intellectual and independent-minded.

DeYoung and Gray (2009) noted that the Big Five were originally conceived as independent traits at the highest level. However, research has since shown that the traits themselves possess a higher-order factor structure. One of these meta-traits is labeled α , or stability, consisting of agreeableness, conscientiousness, and reversed neuroticism. The other is labeled β , or plasticity, and is formed by extraversion and openness/intellect. It is noted that behavior genetic analysis supports a genetic origin to these meta-traits (Jang et al., 2006). DeYoung and Gray (2009) further indicated there is accumulating evidence that stability is related to serotonin while plasticity is related to dopamine. Within the CBM formulation, a more reasonable explanation for these two meta-traits is the Type-G and Type-T distinction. If the CBM formulation is accurate, this suggests that Type-G individuals would have relatively higher serotonergic activity while Type-T individuals would have relatively higher dopaminergic activity. If this correlation were proved to be accurate, it is still unclear as to whether the neurotransmitter differences would be the result of the cortical processing, and associated behavior patterns of each type, versus contributing to the formation of each type, or both.

Conclusions

This paper has attempted to set out an argument that brain-model based interpersonal behavior patterns are theoretically possible. Although terms like “giver” and “taker” have a pop psychology feel, their descriptions are based on an explicit model of cortical functioning whereby all humans attempt to activate positive emotions and deactivate negative ones in relationships. These descriptions have proved useful in a clinical context as schemas for clients trying to deal with detrimental memories of past relationships, as well as for developing strategies to make current relationships healthier. Hopefully, the model outlined in

this paper will serve to stimulate interest and research on the CBM approach, including the accuracy of the behavior patterns described.

References

- Adolphs, R. (2001). The neurobiology of social cognition. *Cognitive Neuroscience*, *11*, 231-239.
- Adolphs, R. (2010a). Conceptual challenges and directions for social neuroscience. *Neuron*, *65*, 752-767. doi: 10.1016/j.neuron.2010.03.006
- Adolphs, R. (2010b). What does the amygdala contribute to social cognition? *Annals of the New York Academy of Sciences*, *1191*, 42-61. doi: 10.1111/j.1749-6632.2010.05445.x.
- Bates, J. E., Goodnight, J. A., & Fite, J. E. (2010). Temperament and emotion. In M. Lewis, J. M. Haviland-Jones, and L. F. Barrett (Eds.), *Handbook of emotions* (pp. 485-496). New York: Guilford Press.
- Cacioppo, J. T., & Berntson, G. G. (1992). Social psychological contributions to the decade of the brain: Doctrine of multilevel analysis. *American Psychologist*, *47*, 1019-1028.
- Costa, P. T., & McCrae, R. R. (1992). *NEO PI-R professional manual*. Odessa, FL: Psychological Assessment Resources.
- DeYoung, C. G., & Gray, J. R. (2009). Personality neuroscience: Explaining individual differences in affect, behavior, and cognition. In P. J. Corr, & G. Matthews (Eds.) *The Cambridge handbook of personality psychology* (pp. 323-346). New York: Cambridge University Press.
- DeYoung, C. G., Hirsh, J. B., Shane, M. S., Papademetris, X., Rajeevan, N., & Gray, J. R. (2010). Testing predictions from personality neuroscience: Brain structure and the Big Five. *Psychological Science*, *21*, 820-828. doi: 10.1177/0956797610370159
- Jang, K. L., Livesley, W. J., Ando, J., Yamagata, S., Suzuki, A., Angleitner, A., ... Spinath, F. (2006). Behavioral genetics of the higher-order factors of the Big Five. *Personality and Individual Differences*, *41*, 261-272.
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. Pervin, & O. P. John (Eds.) *Handbook of personality: Theory and research*, 2nd Edition (pp. 102-138). New York: Guilford.
- Klerman, G. L., Weissman, M. M., Rounsaville, B. J., & Chevron, E. (1984). *Interpersonal Psychotherapy of Depression*. New York: Basic Books.
- LeDoux, J. E., & Phelps, E. A. (2010). Emotional networks in the brain. In M. Lewis, J. M. Haviland-Jones, & L. F. Barrett (Eds.), *Handbook of emotions* (pp. 159-179). New York: Guilford Press.
- Miller, G. A. (2010). Mistreating psychology in the decades of the brain. *Perspectives on Psychological Science*, *716-743*. doi: 10.1177/1745691610388774
- Moss, R. A. (2001). *Clinical biopsychology in theory and practice*. Greenville, SC: Center for Emotional Restructuring.
- Moss, R. A. (2006). Of bits and logic: Cortical columns in learning and memory. *Journal of Mind and Behavior*, *27*, 215-246.
- Moss, R. A. (2007). Negative emotional memories in clinical treatment: Theoretical considerations. *Journal of Psychotherapy Integration*, *17*, 209-224. doi:10.1037/1053-0479.17.2.209
- Moss, R. A. (2010). Clinical Biopsychology: Could A Grand Theory Actually Exist To Allow True Psychotherapy Integration? *Independent Practitioner*, *30*, 67-71.
- Moss, R. A., Hunter, B. P., Shah, D., & Havens, T. L. (2012). A theory of hemispheric specialization based on cortical columns. *Journal of Mind and Behavior*, *33*, 141-172.
- Moss, R. A., (2013a). A roadmap to the cerebral cortices. *The Neuropsychotherapist*, *2*, 114-117. doi: 10.12744/tnpt(2)114-117
- Moss, R. A. (2013b). Psychotherapy and the brain: The dimensional systems model and clinical biopsychology. *Journal of Mind and Behavior*, *34*, 63-89.
- Panksepp, J. (2010). The affective brain and core consciousness: How does neural activity generate emotional feelings? In M. Lewis, J. M. Haviland-Jones, and L. F. Barrett (Eds.), *Handbook of emotions* (pp. 47-67). New York: Guilford Press.
- Shutz, L. E. (2005). Broad-perspective perceptual disorder of the right hemisphere. *Neuropsychology Review*, *15*, 11-27. doi: 10.1007/s11065-005-3585-5

Appendix A

Dealing With Each Type in Adaptive Ways

If the patterns of givers and takers are based in reality, a logical deduction is that the most adaptive manner of dealing would be quite different for each type. In each case, clients who follow the rules of adaptive interaction, presented below, will attempt to maximize the overall positive and minimize the overall negative consequences of dealing with particular people with whom they have relationships. In the first part of this discussion, the rules of interaction for relationships that exist at an equal, or peer, level are presented, followed by a discussion about how to deal in relationships where the other party has actual control (e.g., work supervisor).

Dealing With Type-G's in Equal Relationships

The first step in dealing with a giver type is to objectively define the rules that determine the individual's self-evaluation as a good or bad person. To define these rules, one must consider the relationships of the giver in question. For example, a particular giver may have clearly defined rules that allow firm limits to be drawn in work relationships, yet have few clearly defined rules when dealing with a parent, child, or spouse. In this case, the giver may try to please everyone within the family, while being quite different in dealing with co-workers and subordinates.

In relationships where the giver has no clear rules that allow limits or boundaries to be set, there is a high risk of avoidance. In such cases, the giver tries to please everyone, and conflicts of interest will undoubtedly emerge. This giver will attempt to be the peacemaker, and to please all concerned, but will experience negative emotions in the process. The more pressure that this person perceives from one or more parties in the relationship, the more likely it will be that attempts to escape or avoid those possible conflict situations will be made in the future. In such a situation, therefore, a client's putting more pressure on the giver may result in short term success, but long term avoidance. A more adaptive approach would be to teach the giver to develop rules that allow limit setting with others. Any means that best accomplishes this would thus allow the giver to feel like a good person when engaging in the desired behaviors with a client.

For example, let us imagine that this client is married to a giver who cannot set limits with his taker mother. An obvious problem in such a situation is that the giver will frequently attempt to please his mother who, in turn, will predictably attempt to have the most power, control and attention with that client's

giver spouse, resulting in ongoing strain in that client's marital relationship. Although the ideal manner of resolving the conflict is to have the client's giver spouse participate in therapy to reduce the emotional control exerted by his taker mother, many such individuals may choose not to do so. Instead, however, it is possible to teach the client ways to increase the likelihood of her giver spouse actually setting limits with his mother.

The following suggestions are based on logical conclusions and have been found to have clinical benefit. It is likely that additional methods of dealing with givers will emerge as more therapists employ these approaches. The identified methods are: (a) using empathic statements that identify the giver's think/feel conflict; (b) explaining how the giver's behavior creates emotional hurt; (c) asking the giver to develop specific ways to help reduce the client's hurt; (d) giving additional gentle reminders and empathic statements when the giver fails to follow through with agreed upon behavior change; and (e) offering praise for compliance. Each of these methods will now be discussed individually, although it is important to understand that they represent a package that works best when all parts are included.

Empathic statements. Givers strongly desire for others to perceive their hurt in various situations, but are generally unaware of the degree that this is important. As already mentioned, givers become angry if they are made to feel that they are bad in some way. For example, in arguments, they will explain in detail the logic of their decisions, as well as the many things they have done or overlooked previously. It is often possible to reduce or eliminate this argument pattern with empathic statements made to the giver, for example, "I am sure it hurts when you have tried so hard to please me and others and I tell you I would like you to do things differently." In this case, the giver's unidentified emotion of hurt has been accurately labeled, thereby effectively reducing the need to give numerous examples of attempts to please. It also sets the scene where the giver can see, since the giver's motives are clearly understood, that in making any requested changes there is a high likelihood of a positive outcome with that client.

In labeling negative emotions with givers, the word "hurt" seems to be the most effective. Using words such as "angry" or "frustrated" seem to cause the giver to remain defensive since this causes feelings of inadequacy—because the giver feels that expressing anger makes him or her a bad person—whereas the word "hurt" carries no implied meaning of damage

being caused to anyone else in the situation. As the client continues to employ such empathic statements over time, an interesting benefit for the giver is that this person will be able to more accurately label negative emotions, hence reducing the inter-hemispheric incongruence to some degree, and make similar empathic statements to that client.

If used judiciously, “It Hurts When You” can be an extremely effective method of altering a giver’s behavior; however, too frequent or inconsistent use of this statement can be perceived by a giver as creating an unreasonable or unsolvable situation. For example, if a client tells her giver spouse it hurts when he does something in one situation, but in a later situation alters what she wants, the giver is likely to perceive inconsistency and thus decide that changing his behavior is fruitless. Similarly, for the client to tell her giver spouse several times a week that he is causing hurt will likely result in more avoidance behavior since the giver will feel he cannot have contact without causing hurt on a frequent basis.

Givers typically have no rules allowing them to hurt people with whom they have a close relationship. As such, when faced with certain behaviors that cause hurt for someone close, a giver is likely to avoid those behaviors in the future. To engage in clearly labeled hurtful behavior would be an admission to the giver and the other person that there is a desire to create hurt.

Requests for alternative behaviors. Once it has been established that hurt occurs under certain conditions, givers usually want to find a way to re-establish their “good person” status. In most cases, the giver should preferably be allowed to decide on the behaviors to adopt in future situations. So, although they may simply ask to be told what to do, givers will more likely follow through with new behaviors if the solution is their own. This outcome may be achieved by telling the person, “I know you don’t want to hurt me anymore, but I want to be fair to both of us. Perhaps we should think about how we can best do that and then talk about this again in a couple of hours.” By allowing the giver time to think about solutions, it should be possible to avoid impulsive—and often ineffective—behavior change requests. Givers are usually fair problem solvers and, given time, are likely to suggest fair ways of dealing with the problems. Moreover, the giver will feel less coerced if given time to derive solutions.

Continuous empathic feedback for failure. As always, the best predictor of future behavior is past behavior. When agreed upon behavior change fails to

occur, it is important to bring this to the attention of the giver. Statements like, “I know it hurts for me to remind you, but you did not do what you agreed. Will you please continue to try?” can have a very beneficial effect with givers. Although curt or pointed reminders may be effective in getting the desired change, using the softer empathic approach will do the same without the same degree of negative emotions.

Praise for success. Givers desire to feel appreciated, hence acknowledging appreciation provides them with an opportunity to maximize positive feelings. An interesting point is that givers sometimes feel uncomfortable with a lot of direct praise. This obstacle can be overcome by saying nice things about them to other people, in the giver’s presence, or even just telling the giver that you told someone how much you appreciate what the giver has done. Such methods of indirect praise result in the giver’s feeling more comfortable with accepting the praise.

Dealing With Givers’ Well-Defined Rules.

Although the foregoing comments can apply to getting behavior change from a giver, even when the giver has clearly defined rules, there are nevertheless exceptions to this. Specifically, a giver may have certain rules that that person is unwilling to compromise—hence, constantly telling a giver you want that person to change in this instance will necessarily result in angry outbursts, or escape. In this situation, the giver’s rules determine that being a good person requires behaviors that are incompatible with what is being requested. Consequently, a client will have to decide whether the desired behavior change is critical for the survival of the relationship. If not, this is one of those situations in which they simply agree to disagree.

Dealing With Givers in Superior Relationships.

Superior relationships refer to those in which the other person has some mutually perceived power or control over a client—for example, one’s boss, doctor, teacher or minister. Again, these givers will vary on the clarity of the rules they follow. Regardless, these individuals still desire to feel like the good person; as such, these people tend to be fair. By following the approaches already discussed, it is likely that a client can have a great deal of success in dealing with givers in superior positions. However, there are exceptions. For example, a giver boss who tries to please everyone may fail to take a stand for one individual if other co-workers who are more powerful and demanding are involved in the dispute. Similarly, a giver’s rules may not allow him or her to give in

to a client's requests. In this case, the giver will often explain these rules so that the rules themselves—and not the giver—become the object of an individual's ill feelings. The important point in deciding whether a person in a superior position is a giver has to do with approachability and fairness. If the person is a giver, it is reasonable to pursue open and frank discussions.

Dealing With Type-T's in Equal Relationships.

It is important to note that the techniques used with giver types will be very ineffective in dealing with taker types; it will also be quickly apparent if an error has been made in mistaking a taker for a giver as the techniques are applied. For example, a taker with whom a client has had a long-term relationship will usually respond negatively when told he has created hurt. Such negative reactions involve verbal attacks or obvious ignoring, stemming from the taker's desire to take power, control and attention, with no concern about being perceived as a bad person.

Setting limits. Since takers play by the rule, "I win, I get my way," attempts to reason logically with them will prove fruitless. Therefore, the key is to draw firm limits. The most adaptive manner is to control a taker's access to a client or those things truly within a client's control. An example would be to have a client leave the room when the taker spouse is being verbally abusive or cold. If the taker pursues the client while continuing to rant and rave, it will then be necessary for the client to temporarily leave the house. Such behavior tells the taker spouse that the only means of getting access to the client is by being nice. It is also advisable that the individual does not give in to the taker's demands when being treated in an aggressive or cold manner: Giving in to a taker's demands should be done only if the demands are judged as reasonable and fair, and the request is made in a nice fashion.

Unilateral fairness. Since a taker cannot negotiate fairly, a client has no choice but to decide on what is fair—and in fact insist on compliance by the taker. This is again consistent with drawing limits. At face value, this may not seem particularly fair to the taker; however, it is important to recall that a taker is unable to arrive independently at fair solutions. It is also important to recall that a taker is willing to give only when forced to do so because this is the only means to gain access to the individual.

A concern of many clients may be whether or not their taker spouse will leave the relationship under such conditions. That is always a possibility, although taking such action is simply accelerating what would most likely have occurred anyway. In explanation, a

client is not of sufficient value to the taker if the taker is willing to leave when fair demands are being given and enforced. In this case, a taker usually has one or more other relationships that are of more value and can justify the loss accordingly. (This scenario is discussed more fully in a later section.)

The reality is that a taker will be less likely to leave if he or she has to be nice to get access to a client, since potentially the person now has less power and control. Thus, although it is initially frustrating from the point of view of the taker, the client actually acquires more value when the ability to control—by blowing up or being cold—is reduced or lost. At such times, the taker is more willing to put a "best foot forward" in the same manner as when the relationship began.

Becoming predictable. Once clear limits are established, it is equally important to expect a taker periodically to push those limits. The more this is expected, the more likely a client will consistently respond in the most adaptive manner. Conversely, the more predictable a client's behavior becomes to the taker, the less likely it will be that those limits will be pushed in the future.

Focus on what is said to you, not about you. When dealing with a taker, it is critical for a client to accept that the taker's behavior can only be influenced in the client's presence—therefore, it is possible to have them treat your client nicely if limits are maintained, as discussed previously. However, the client needs to keep in mind that that taker is likely to make many disparaging remarks when talking with others, particularly in the absence of the client. Although this happens whether a client sets limits or not, it will probably occur less often when firm limits are in place, since the client has increased value to the taker.

Temporary exit. In situations where the taker's patterns in the relationship are extremely well entrenched, a temporary separation may be required to establish more reasonable behavior. In this case, simply leaving the room or the house for brief periods may not be effective, whereas by separating it is much easier to control the taker's access to a client. Access is granted only under favorable conditions. Since the taker is aware that the client can go elsewhere, and not return, it is more likely that the taker's behavior will be nicer. When that client returns, it is imperative to make clear that another separation will occur unless the taker respects the client's right to terminate access briefly.

Dealing With Takers in Superior Relationships

This is by far the most difficult area in which to advise a client. Since the taker has mutually perceived power and control over the client, it is very difficult to establish and maintain clear limits. The degree to which this is possible varies greatly from situation to situation. In cases where the client actually has superior talents or abilities, and these are of value to the taker in control, it is possible to establish some limits. If the client has no exceptional value, however, limits are much harder to maintain. If a client is unwilling to accept the ultimate possibility of terminating the relationship (e.g., quitting a job), then that client will be reduced to engaging in a number of behaviors described below that may decrease the negative interactions.

Some clients may decide it is unreasonable to remain in any situation where a taker has mutually perceived control. This is certainly an understandable decision, although there is always a high likelihood of having to deal with another taker supervisor in a new position.

If the decision is to remain in a situation where the client is trying to reduce negative interactions, several behaviors may prove helpful. These are: (a) feeding information; (b) avoiding negative comments and making positive comments about the taker (particularly to his superior, if possible); and (c) letting the taker make suggestions tied to the client's work.

Since takers in positions of power attempt to control information flow and exchange, they are often quite nosy and insist that they need to know everything. Frequently, a subordinate will perceive this invasive control and consequently attempt to become more secretive. Unfortunately, the taker perceives this and then exerts even more tight control. On the other hand, if the subordinate begins a daily routine by simply conversing with the controlling taker and feeding him information, the taker feels less threatened and is less likely to be as nosy.

Making negative comments to co-workers about a taker boss is common, but can actually lead to problems for that client since taker bosses do listen carefully to any office gossip. Furthermore, as a client may have taker co-workers, there is a high likelihood that such comments will be repeated to the boss. In the circumstances, it will be best for that client to only make negative comments to trusted individuals who are not connected to the work situation.

Since takers always want positive attention and praise from anyone, making positive comments can be beneficial in interactions with a taker boss. These

will be especially helpful if they are made to the taker's boss and that person is likely to pass on the comment and the client's name to the taker. The client may feel that this is merely helping to consolidate the taker's own position of control; however, this concern is probably not well-founded since the taker is already saying all the "right things" to his boss to maintain his position. Moreover, a taker usually has the skill to impress those in higher positions.

A final strategy in dealing with a taker boss relates to the taker making suggestions tied to the client's work. Thus, if a taker boss feels involved, that individual has a vested interest in keeping the work moving as efficiently as possible. If a client works for someone who rarely makes useful suggestions, the client can approach the boss with a solution already in mind. In this case, the client already knows what he or she wishes the taker boss to say, and then can selectively ignore any other suggestions made by the boss. Even if the taker has to be guided with a few hints, the client can immediately respond in a positive way to the suggestion when it is finally made, and then praise the taker for the input.

It should be obvious from the foregoing discussion that these suggestions amount to playing games, and the likelihood that a client will continue to experience frustration and resentment remains high. It should be understood, however, that these "games" would only be used by the client if he or she has decided to stay in that situation.

Realistic Expectations of Divorce

If a marital or serious relationship ends, Type-T and Type-G individuals demonstrate distinct behavior patterns as well. During a divorce, different responses will also occur, depending whether your client is the one seeking the divorce or the one who has been left.

Takers being left. Logically speaking, these are by far the most problematic divorces. In such cases, you have people who, by their nature, always feel cheated and never wish to lose anything they desire. Since the only rule they follow is "I win, I get my way", there are no holds barred. These individuals are willing to lie, manipulate, and threaten every step of the way. They are willing to use anybody, including extended family, in-laws, friends, and even their own children, to coerce their spouse into changing his or her mind. They will ignore the advice of others—including their own attorney—which does not fit with their own short-term goals. They will even lie on the witness stand and in many cases ignore court orders, unless they have no choice.

These individuals elicit the most sympathy from others since they are very effective at playing the martyr/victim role. In these circumstances, it takes a very determined individual to follow through with the divorce since it seems so much less stressful to simply give up and return to the marriage. For those who do stay the course, it is common for the spouse who left to avoid conflict by giving up most material possessions in court proceedings and even to avoid contact with the children if they are living with the jilted spouse. The latter occurs because the taker spouse will take every opportunity to get back at the spouse who left, including making verbal attacks on the spouse when picking up the children for visitation, and constantly altering the times visitation can occur. Unless the spouse who left has clear priorities that include time with the children, it is much easier for him or her simply to avoid contact with the abusive spouse by avoiding visitations.

If a client is preparing to leave a taker spouse—expect these events to occur. The best way to deal with such an individual is to have clearly stated visitation times and to be willing to enforce them through the court system if necessary. It seems advisable to avoid conversations with this spouse since predictably they will deteriorate quickly. Instead, the client can let the spouse know that only written responses will be given. This strategy limits many “off the cuff” requests and attacks since the taker spouse will be reluctant to put much of this in writing. Despite the fact that many people who leave such a spouse believe it is best to give that spouse everything, this does not make it better for either person. The jilted taker will tell anyone who will listen how he or she got nothing, even if that is a lie. In fact, if your client is leaving such a spouse and agrees to take on an excessive financial responsibility—including child support and alimony—it is to be expected that the taker spouse will not spend much of that money on the children and even insist that your client pay more, otherwise the children will have to do without. Even if this person has an excess of resources, there will be continued comments to others that the client has everything and he or she has nothing.

In this situation, it is best for a client simply to accept the fact that this spouse is incapable of a different set of behaviors, and there is absolutely nothing that can be done to stop the hurtful comments and behaviors. In fact, the more the client responds, whether directly to the ex-spouse or indirectly by talking to others, the more the ex-spouse will continue the hurtful comments and behaviors, since he or she is well aware of their effect.

Givers being left. In only a few instances does a giver who is left cause any long-term difficulties for a spouse who leaves. In many cases, a giver spouse who does not want a relationship to end may allow the ex-spouse to return, sometimes even years later. Since these people want to be seen as “the good guy”, they tend to be the kind of person who may later be described as a friend by the ex-spouse. Givers are usually fair in settlement issues and demonstrate an ability to let the ex-spouse maintain a comfortable relationship with the children. They try to play fair, and usually comply with reasonable requests. In general it is unnecessary to have strict rules established through the court because these individuals normally develop their own fair rules.

The two instances in which givers who are left can create problems are (a) when they are left for someone else, and (b) when they have genuine concerns about the children’s welfare. In the first instance, these people may be less agreeable in all matters as a result of their hurt combined with their rules that define the partner that left as being the bad person. Since the partner that left is considered the guilty party, the jilted giver can justify negative comments and actions that would normally be avoided.

In the second case, where there are concerns over children, the giver can justify negative actions and comments towards the ex-spouse by interpreting his or her own actions as being for the children’s sake. Furthermore, despite the fact that a giver’s own hurt and anger contribute to negative acts, this is not recognized or accepted by most givers because this behavior would be seen as being inconsistent with being the good guy.

Takers who leave. Takers who decide to leave do not create the same problems as takers who are left. Takers leave because they have found someone they consider better, usually someone who can give them more than the current spouse. The decision to leave happens because the taker cannot have both the current spouse and the other person. Otherwise, takers by their nature try to keep everything—including multiple relationships if that is possible.

Since a taker leaves because of having more that can be obtained elsewhere, the ex-spouse is usually ignored. Children are also forgotten if they are not compatible with the new life the taker has found. They are the kind of people who will let the other spouse have custody, unless they stand to gain substantial child support, and rarely visit the children once the divorce is final. Although they may voice a desire to see the children, they may not even show up for visits

that they themselves have scheduled.

Takers who leave are usually unwilling to forego the material things. In fact, they will still keep everything they possibly can, including the home and all other possessions. Given the fact that they are willing to push all limits, it is not surprising to see that a taker who leaves may actually end up with more than the spouse they left.

In rare instances, the taker may decide he or she had it better in the former relationship and attempt to return. Takers can be very charming at that time, with a great deal of feigned remorse. If they are not allowed to return, they may develop the more characteristic patterns of the jilted partner described previously. In this case, they will attempt to return to the relationship using whatever means necessary.

Givers who leave. Givers generally leave for one of three reasons: (a) they find someone else; (b) they feel the relationship is going nowhere; or (c) they find the relationship causes too much hurt. In the case where they find someone else, the new person makes the giver feel appreciated and desired. As a result, givers may actually enter into new relationships that result in their having less material things than the former relationship. In such cases, the giver is usually willing to give up many things from their former relationship, including the house, shared friends, and organizations such as their church. This is due to the giver feeling that he or she has been the “bad person” for leaving under such circumstances, and desires to be less of a bad person by letting the ex-spouse have everything.

In cases where a giver feels the relationship is going nowhere and leaves because “we have grown apart”, you will always find that the spouse being left is also a giver. Otherwise, the taker spouse who was left would create much guilt for the giver, resulting in the giver staying or finally leaving because of the hurt. Amicable divorces with fair settlements are possible only when two givers are involved.

If givers leave because of too many negative emotions tied to the relationship, they are once again willing to give up a great deal in the settlement. The one exception to this would be if the hurt was caused by the jilted spouse’s having an affair. In that case, the giver who leaves may feel justified in bargaining very little, since the jilted spouse is seen as the bad person.

Givers who leave often maintain a healthy relationship with their children. If they plan to do something with the children, they are quite conscientious in keeping plans. There appear to be two factors that can prevent a giver from maintaining a relationship with children living with a former spouse. One reason is dealing with an ex-spouse who is a taker being left, and the other may involve a new taker spouse.

It has already been indicated that a jilted taker spouse will make life miserable for the spouse who leaves—givers cannot bear to feel like a bad person, and the ex-spouse would be expected to make him or her feel that way. In the absence of a strong priority involving children, the giver spouse would thus avoid contact with the children in order to avoid being made to feel like a bad person by the ex-spouse.

The other scenario involves a giver spouse who leaves and becomes involved with a taker. In this case, the new taker would experience jealousy of any attention shown to the children. This would become particularly noticeable after a marriage to a new taker spouse, when his or her “true colors” become obvious. The giver may find any number of “socially acceptable” reasons for decreasing contact with the children, although the true driving force would be the guilt and complaining generated by the new spouse.

Giver spouses who leave will try to be as nice as possible to the jilted spouse. They may even continue to do things to help the jilted spouse if they feel appreciated for doing so. However, failure to express appreciation to an ex-spouse who is a giver will result in the cessation of helpful actions.

ALEXANDER LURIA: LIFE, RESEARCH & CONTRIBUTION TO NEUROSCIENCE.

Maria Ilmarovna Kostyanaya

The University of Queensland

Pieter Rossouw

School of Psychology, School of Social Work and Human Services

The University of Queensland

Abstract

This article focuses on the Soviet psychologist and founder of Russian neuropsychology, Alexander Romanovich Luria, and his contribution to the development of neuroscience globally. The article begins with a short biography, with particular focus on the formation of Luria's theoretical views. Key aspects of theory concerning the structural and functional organization of the brain are then discussed, including Luria's ideas on the three principal functional units and the interaction between them. In conclusion, Luria's scientific ideas are compared to developments in contemporary research.

Key words: Luria, neuropsychology, Russian neuropsychology, principal functional units, neuroscience, neuropsychotherapy.

Correspondence concerning this article should be addressed to :
Dr. Pieter Rossouw, PO Box 6460, St Lucia, Queensland, Australia, 4067.
e-mail: p.rossouw@uq.edu.au

Kostyanaya, M. I., & Rossouw, P. (2013). Alexander Luria – life, research and contribution to neuroscience. *International Journal of Neuropsychotherapy*, 1(2), 47-55.
doi: 10.12744/ijnpt.2013.0047-0055

Аннотация

Данная статья посвящена выдающемуся советскому психологу, основоположнику отечественной нейропсихологии Александру Романовичу Лурия, а также его вкладу в развитие мировой нейронауки. В первой части статьи приведена краткая биография Александра Романовича, где особое внимание уделяется этапам формирования теоретических воззрений ученого. Далее обсуждаются основные аспекты теории структурно-функциональной организации мозга, в частности, взгляды А. Р. Лурия о трех функциональных блоках мозга и их взаимодействии. В завершении статьи проводится сопоставление научных воззрений А. Р. Лурия с разработками современных зарубежных авторов.

Ключевые слова: Лурия, нейропсихология, отечественная нейропсихология, три основных функциональных блока мозга, нейронаука, нейропсихотерапия.

Background – Alexander Luria

It has been regretfully noted that a dearth of documentary materials exists on both the origins of Soviet neuropsychology and the life of its founder, Alexander Romanovich Luria (Akhutina, 2003, p. 160; Luria, 1979, p. 190). Among the possible reasons for this are the restricted nature of the political and scientific environments of the time, a deficit in translation, the complexity of theoretical principles involved, and perhaps the modesty or reserved character of the author himself (Luria, 1979, p. 189).

Despite the above-mentioned as well as other complications, works of Luria did receive recognition, mostly in the United States and Europe (Ardila, 1991; Goldberg, 1990; Golden & Berg, 1981; Holowinsky, 1993; Lewis, Hutchens, & Garland, 1993; Solso & Hoffman, 1991; Tulviste & Hall, 1991; Tupper, 1999). However, it seems that recognition could have extended far beyond these areas. Acknowledging the deep interest and fascination for the figure of Luria shared by many of his contemporaries and disciples, we aim to present here a brief overview of his scientific achievements.

At first glance one might find the course of Luria's scientific career somewhat incoherent or, as put by Michael Cole, "otherwise disjointed" (Luria, 1979, p. 198). However, this will be viewed against the backdrop of social discord at the time, in which few central motifs and a variety of "secondary themes" become apparent.

The immediate family of Luria resided in Kazan, an old university town and major commercial center on the Volga River, 600 miles southeast of Moscow. Being born in 1902 and brought up in an atmosphere "sympathetic to the revolutionary movement" (Luria, 1979,

p. 18), Luria and his relatives had to face all the difficulties that a Jewish family might encounter at that time of hardship. Thus, only after the freedom of the October 1917 Revolution was Luria's father Roman Albertovich, a qualified medical school doctor, offered a position at the University of Kazan. He would later become vice-director of the Central Institute for Advanced Medical Studies in Moscow.

Refusing to embark on a purely medical career, Alexander Romanovich nevertheless always maintained a connection with medical schools, and shared with his father a particular interest in German psychosomatic science. The climate of intellectual development that dominated his family as well as a profound knowledge of German, French and English enabled Luria to reconcile major scientific ideas of his predecessors and contemporaries. By his own account, Luria was influenced by such outstanding scholars as Harald Høffding, Sigmund Freud, Alfred Adler, Carl Jung, and Lev Tolstoy, as well as by works of the German neo-Kantians, including Heinrich Rickert, Wilhelm Windelband, and Wilhelm Dilthey (Luria, 1976, 1979; Vygotsky & Luria, 1925/1994). It is worth noting that in his autobiographic work, Luria admits that his "primary ambition was to become a psychologist" and "to take part in the creation of an objective approach to behavior that concentrated on real-life events" (Luria, 1979, p. 25).

Following gymnasium study from 1912 to 1918, Luria was accepted into the Faculty of Social Sciences at Kazan University. At that time he also became active in the Student Scientific Societies, where for the first time he devoted himself to works of Wundt, Titchener, and Ebbinghaus (Kuzovleva & Das, 1999, p. 53). In 1921 Luria continued his education in the Medical Department of Kazan University.

Being especially interested in psychoanalysis, Luria organized the Kazan Psychoanalysis Study Group, with the first meeting held in 1922. After completing his report on “The Modern Condition of Psychoanalysis,” Luria sent a letter to Sigmund Freud, notifying him of the existence of the group in Russia. In his answer, Freud expressed much surprise and gave authorization to translate his work (Glozman, 2007, p. 172).

Research and publications

After publishing in 1923 a monograph on the basic tendencies of modern psychology, Luria began to write articles for the journal *Problems of Psychophysiology of Labor and Reflexology*. It was this that attracted the attention of Professor K. N. Kornilov, the Director of the Moscow Institute of Psychology, who subsequently invited the young Luria to conduct research in Moscow.

In Moscow, Luria started lecturing at the Academy of Communist Education. Later, he simultaneously became head of the psychological laboratory in Kornilov’s Institute, the laboratory in the Institute of Criminalistics, and the psychological laboratory in the Academy of Communist Education. Due to a lifelong reticence to discuss aspects of his personal life, it has only recently become evident that between 1923 and 1930 Luria also married his first wife, Vera Blagovidova (Kuzovleva & Das, 1999, p. 54).

During the late 1920s, Luria worked at the Institute of Psychology with another remarkable Russian psychologist, Alexei Nikolaevich Leontiev, on the combined motor method for the purpose of understanding complex human behavior or the influence of affective reactions on motor reactions. As the result of their work, several articles were published, leading to further development of the first lie detector in the criminal justice setting (Luria, 1979, p. 196).

In 1922 Luria published his first large work, entitled *Principles of Real Psychology*, in which he formulated the methodological basis of Soviet/Russian neuropsychology that was later adopted by his disciples (Glozman, 2007, p. 172).

It was January 1924—the “turning point” in his life (Luria, 1979, p. 37)—when during the Second Psychoneurological Congress in Leningrad (present-day St. Petersburg), Luria first met Lev Semyonovich Vygotsky. Vygotsky soon joined Luria and Leontiev in Moscow, and the newly formed “troika” began its work on a thorough revision of major developments over the preceding years in psychology, sociology, and biological theory. These young scholars “had the te-

merity” (Luria, 1979, p. 205) to question many theories and aimed to create the new Soviet psychology.

At that time, Luria and Vygotsky also started their first experiments on patients with brain impairment. Initially they tried to determine the relationship between the elementary and higher forms of mental activity as well as their cerebral representation in healthy adults. Further on, the young researchers focused on the processes that might appear in the conditions of brain impairment in early abnormal ontogenetic development (Glozman, 2007, p. 172). In the end, they came up with some first ideas on the social-historical approach to the origins of human mind.

Concurrently, a group of five students including L. I. Bozhovich, R. E. Levina, N. G. Morozova, L. S. Slavina, and A. Zaporozhets joined “troika” and began a new scientific school with the focus on symbolic activities in their research. In addition to the work with Vygotsky, this period was significant for Luria in establishing his ideas on the planning and regulating role of speech and aphasia as the first developments of Russian neuropsychology.

In 1929 Luria presented two of his works at the Psychological Congress in the United States: the first on the combined motor method, and the second on egocentric speech in children. It was on a trip to Germany during this time that he also met Levin, Kohler, and Zeigarnik, and participated in the experiments of Dembo.

In 1931 Luria carried out his first expedition to the Central Asian region of the Soviet Union, the Republic of Uzbekistan, with a second expedition following in 1932. As a result of hostile interrogation by the government, however, Luria was first accused of research based on racism theories, and by 1932 the Vygotsky group had to cease their investigation of the social-historical development of mental processes.

In 1932 Liveright published Luria’s notorious work *The Nature of Human Conflicts* (reissued in 1976) on the basis of his doctoral dissertation.

In 1933 Luria married Lana Linchina, a scientist, who remained his wife for the rest of his life. Luria and Lana had a daughter, Elena Alexandrovna Luria, who went on to become a distinguished microbiologist (Kuzovleva & Das, 1999, p. 54).

Due to censorship persecution, Luria had to leave Moscow for Kharkov along with some of his colleagues, where he started lecturing at the Academy of Psychoneurology as well as studying at the Medical Institute and working at the clinic. At that time, Luria continued his investigation of the changes of mental

processes in patients with brain impairments.

In 1934 he returned to Moscow and became head of the Laboratory of Psychology in the Moscow Medical Genetics Institute and the Laboratory of Pathopsychology in the All-Union Institute of Experimental Medicine. This period of scientific work is remarkable for the study of the development of identical and fraternal twins and the role of heredity and external factors in mental processes.

However, due to yet another governmental restriction on genetic psychology in 1936, Luria was forced to leave all his places of work and became a full-time student of the First Medical Institute, while he worked on his doctoral dissertation.

In 1937 Luria presented his dissertation on sensory aphasia at the Tbilisi Institute of Psychology and graduated with a medical degree from the First Moscow Medical Institute.

Later he worked as a neurologist at Burdenko's Neurosurgical Institute in Moscow, developing methods of diagnosis of cerebral lesions.

During the period from 1937 to 1941, Luria worked at the neurological clinic of the Institute of Experimental Medicine as head of the Laboratory of Experimental Psychology, with a focus on the study of three forms of aphasia.

At the beginning of World War II, he organized a base neurosurgical hospital in the village of Kisegach in the South Urals. This time enabled Luria to assemble an enormous collection of data, facilitating work in two main directions: firstly, devising methods for the diagnosis of local cerebral lesions and the side effects caused by the brain damage involved, and secondly, developing rational scientific methods for the rehabilitation and treatment of patients.

Back in Moscow in 1945, Luria began working at the clinic of the Neurosurgical Institute and lecturing at Moscow University. He was among a group of colleagues who laid the foundation for the Faculty of Psychology at the Lomonosov Moscow State University, where from 1968 he headed the Department of Patho- and Neuropsychology (Zhdan & Homskaya, 1997).

Luria's famous book *The Man with a Shattered World: The History of a Brain Wound* (1972/1987a) would come to exemplify the next neurological stage of his scientific career. Soon, however, in 1950, the harshness of the political environment in the Soviet Union prompted Luria along a different pathway once again.

The "ideological defeat of Soviet biological and medical sciences" (Kuzovleva & Das, 1999, p. 55) initiated by Stalin led Luria to start work at the Institute of Defectology. There he expressed interest in research into the planning and regulatory role of speech in human behavior, and particularly in the development of verbal regulation in mentally retarded children. While concurrently lecturing at Moscow University, Luria managed to develop specific tests for children for diagnostic and treatment purposes. The main focus of these psychological tools remained on speech development in special education settings.

In the years following the death of Stalin in 1953, there was an easing of restrictions behind the Iron Curtain, and from 1955 it became possible to exchange knowledge and experience between the Soviet Union and other countries. Many American psychologists as well as the Swiss developmental psychologist Jean Piaget made visits to Luria's laboratory, while Luria himself travelled to Norway, Brussels, and London, lecturing and participating in scientific discussions.

In 1959 Luria was elected to re-establish the Neurosurgical Institute, where, with the help of his former students Fillipicheva, Homskaya, Pradina, and Tsvetkova, the laboratory continued the study of the organization of mental functions in the brain. The work was dedicated to the methods and procedures of localization and the restoration of cerebral impairments and corresponding functions.

In the following decade, Luria spent some time abroad, attending a symposium at Princeton University, lecturing in North America, meeting Jerome Bruner in Montreal and, later, Skinner and Pribam at the XVIIIth International Psychological Congress in Moscow. Over time he gained international recognition, becoming a member of the National Academy of Sciences (in the USA), American Academy of Arts and Sciences, American Academy of Pedagogics, and several psychological societies in France, Great Britain, Switzerland and Spain (Kuzovleva & Das, 1999, p. 56).

From the time of the re-establishment of the laboratory in the Neurosurgical Institute until the end of life, Luria primarily concentrated on the cerebral organization of human mental processes. He introduced the concept of the three principal functional units of the brain, described the organ's systemic structure and functioning, and laid down some of the core principles of neuropsychology.

In the late 1960s, Luria shifted his interest to the dysfunction of the frontal lobes, leading to the second

volume of *Human Brain and Psychological Processes* (1966).

Later, Luria set out to write *Cognitive Development: Its Cultural and Social Foundations* (1976b), where he could finally discuss openly his research conducted in Central Asia. The late 1960s and 1970s were fruitful in terms of publications in Russia and abroad. The list of Luria's more remarkable works includes *Restoration After Brain Injury* (1963), *Higher Cortical Functions in Man* (1966), *Traumatic Aphasia: Its Syndromes, Psychology, and Treatment* (1970), *The Working Brain: An Introduction to Neuropsychology* (1973), *Basic Problems of Neurolinguistics* (1976a), *The Neuropsychology of Memory* (1976d), and *The Mind of Mnemonist: A Little Book About a Vast Memory* (1968/1987b).

In 1979, with the assistance of American psychologist Michael Cole and his wife Sheila Cole, Luria published his autobiography *The Making of Mind: A Personal Account of Soviet Psychology*.

The last years of Luria's life are characterized by his ideas on a new approach to the structure of memory, new branches of neuropsychology such as neurolinguistics, and the study of the interrelationship between brain hemispheres (Kuzovleva & Das, 1999, p. 56).

Just weeks after his 75th birthday, on August 14, 1977, Alexander Romanovich Luria died from a heart attack in Moscow. At the time, he was writing what would be his last work, entitled *Paradoxes of Memory*, the English volume of which was published only in 1982 (Homskaya, 2011, p. 117).

Key aspects of Luria's neuroscientific approach – the three principal functional units

Luria posited that human mental processes represented complex functional systems that involved groups of brain areas working in concert, each making a unique contribution to the organization of a functional system.

Thus, Luria designated three principal functional units of the brain necessary for human mental processes in general and conscious activity in particular (Luria, 1973, p. 43):

- the unit for regulating tone or waking,
- the unit for obtaining, processing and storing information, and
- the unit for programming, regulation and verifying mental activity.

Each of these three units appears to have a hierarchical structure comprising three cortical zones based one upon the other: the *primary* (projection) area, which receives impulses from or sends impulses to the periphery, the *secondary* (projection-association) area, where incoming information is processed and programs are prepared, and the *tertiary* (zones of overlapping) areas—the latest systems of the cerebral hemispheres to develop, which are responsible for the most complex forms of mental activity requiring the concerted involvement of many cortical areas.

Unit 1 – The unit for regulating tone or waking and mental states

Luria argued that the organized course of mental activity—when one is receiving and analyzing information, the activity is programmed, and the mental processes are checked by mistake correction—cannot be obtained without the waking state.

M. N. Livanov invented the “toposcope,” which enabled researchers to visualize between 60 and 150 points of cortical excitation, as well as their dynamics, in the cortex of a waking animal.

Luria mentioned in this regard Magoun and Moruzzi, who in 1949 showed that the reticular formation in the brain stem, with the structure of a nerve net, *gradually* modulates the whole state of the nervous system (Luria, 1973, p. 46).

This finding showed that the structures maintaining and regulating cortical tone are located in the sub-cortex and brain stem, and have a double relationship with the cortex. Specifically, the *ascending* reticular system activates the cortex and regulates the state of activity, while the *descending* reticular system subordinates the lower structures to the control of the cortex.

Luria claimed that this discovery was suggestive of a vertical organization to all structures of the brain, with the first functional unit of the brain maintaining cortical tone and the waking state and regulating these states in accordance with the conditions confronting the organism. Importantly, the reticular formation had both *activating* and *inhibiting* portions (Luria, 1973, p. 52).

• Metabolic processes

According to Luria, the reticular system had certain qualities of differentiation or “specificity” in re-

gards both to its anatomical structure and its sources and manifestations. The first of three principle sources of activation of the reticular formation was the *metabolic processes* leading to the maintenance of homeostasis. The reticular formation of the medulla (bulbar) and mesencephalon (mesencephalo-hypothalamic), closely related to the hypothalamus, played a significant part in this “vital” form of activation (Luria, 1973, p. 53). The higher nuclei of the mesencephalic, diencephalic, and limbic reticular formation also took part in more complex systems of instinctive or unconditioned-reflex food-getting, sexual and defensive behavior. These two subdivisions of activation sources were similar in that they occurred in the body, but different in their level of complexity.

- **Stimuli and the orienting reflex**

The second source of activation related to the arrival of *stimuli from the outside world* and represented an *orienting reflex* (Luria, 1973, p. 54). Here Luria referred to the experiments of Hebb (1955) and the human need for incoming information. He further elaborated on the investigative activity of humans as well as the need for increased alertness as the form of mobilization in a constantly changing environment. It is important to emphasize that the tonic and generalized forms of the activation, Luria allocated to the lower regions of the reticular formation, while the phasic and local forms (“more complex, vital or conditioned-reflex in character”) were allocated to the higher structures such as the non-specific thalamic region and limbic system (Luria, 1973, p. 57).

- **Intentions and plans by forecasts and programs**

The third source of activation was represented by “intentions and plans, by forecasts and programmes” (Luria, 1973, p. 57) that were social in their motivation and formed consciously and with the help of *speech*. It is noteworthy that Luria viewed these highest forms of organizational activity as subject to the vertical principle of construction in the functional systems of the brain.

Observing the medial zones of the cortical zones in this unit, Luria claimed that they played a role in the “regulation of the general state, modification of the tone and control over the inclinations and emotions” (Luria, 1973, p. 60).

In summarizing his findings concerning this first functional unit, Luria asserted that impairments

showed the relation between disturbances of *memory* and disturbances of *consciousness* (Luria, 1973, p. 67).

Unit 2 – The unit for receiving, analyzing and storing information

The brain regions of Luria’s second principal functional unit are in the neocortex on the convex surface of the hemispheres—the posterior regions including the visual (occipital), auditory (temporal) and general sensory (parietal) regions. Importantly, this unit consists of isolated neurons, working in accordance with the “all or nothing” rule (Luria, 1973, p. 67). In general the unit represents the “cerebral mechanisms of modally specific forms of gnostic processes” (Luria, 1973, p. 72).

This unit is characterized by high modal specificity of the primary and projection areas. Those modally-specific zones are built in accordance with a single principle of hierarchical organization articulated by Campbell (as cited in Luria, 1973, p. 71), where each of the cortical structures is seen as the central cortical apparatus of a modally-specific analyzer.

The primary zones of the cortical regions of this unit also have “multimodal” cells that can respond to several types of stimuli, and cells that do not respond to any modally specific type of stimuli.

The core projection areas of this unit are surrounded by systems of secondary (or gnostic) cortical zones that contain more associative neurons to implement the synthetic function of converting the somatotopic projection of impulses into their functional organization.

The tertiary zones of this brain system—the “zones of overlapping”—are responsible for the combined work of several groups of analyzers and hypothetically respond to general features of stimuli. They mostly occupy the inferior parietal region that after Flechsig was seen as the “posterior associative center” typical particularly of humans (Luria, 1973, p. 73). These zones enable the “transition from direct, visually represented syntheses to the level of symbolic processes” and also play a role in the “memorizing of organized experience” (Luria, 1973, p. 74).

Luria defined three fundamental laws of the work structure of the cortical zones of the second and the third brain units (Luria, 1973, p. 74).

- *Law of the hierarchical structure of the cortical zones:* The primary, secondary and tertiary cor-

tical zones are engaged in the complex synthesis of information and change in the course of ontogenetic development.

According to Vygotsky (as cited in Luria, 1973), the interaction between the cortical zones goes “from below upward,” meaning that defects of the lower zones in infancy must lead to incomplete development of the higher zones. By contrast, among adults the interaction goes “from above downward,” and the tertiary zones then have a compensatory influence if the secondary zones are damaged (p. 74).

- *Law of diminishing specificity of the hierarchically arranged cortical zones of the second brain unit* (starting from the primary zones with maximal modal specificity)

Luria emphasized that the secondary and the tertiary cortical zones show more “functional properties” than the primary ones and play an “organizing, integrative role in the work of the more specific areas” which is necessary for more complex gnostic processes (Luria, 1973, p. 77).

- *Law of the progressive lateralization of functions* (progressive transfer from the primary cortical areas to the secondary and tertiary)

With the occurrence of right-handedness in humans, due to processes such as work and speech, some degree of lateralization of functions takes place (Luria, 1973). Thus, the left and dominant hemisphere in right-handers begins to lead in the “cerebral organization of all higher forms of cognitive activity connected with speech” (p. 78). However, this dominance of the left hemisphere is relative in character (Luria, 1973).

Unit 3 – The unit of programming, regulation and verification of activity

The third principal functional unit is responsible for human intentions, the formation of plans and programs of actions, inspection of performance, verification of conscious activity, and regulation of behavior (Luria, 1973).

The motor cortex and the parts of the great pyramidal tract are core brain structures of the unit (this cortical area is projectional in character). However, a

tonic background is also required, delivered by the basal motor ganglia and the fibers of the extrapyramidal system.

The primary projective motor cortex is seen as the “outlet channel” (Luria, 1973, p. 80) for motor impulses. The impulses should be well prepared with the help of superposed secondary areas of the motor cortex, and only after that can they be sent out to the precentral gyrus and then to the giant pyramidal cells. Other structures responsible for preparation of motor programs include the upper layers of the cortex and the extracellular grey matter of dendrites and glia that controls the giant pyramidal cells of Betz.

This unit, therefore, as an efferent system, runs in the descending direction, starting from the highest levels of the tertiary and secondary zones where the motor plans are formed, to the structures of the primary motor area and periphery (Luria, 1973). Importantly, the premotor areas can be allocated to the secondary divisions of the cortex. These areas play an organizing role for movements.

The second distinctive feature of this unit is that it works under the influence of the second or afferent brain unit and consists entirely of systems of efferent zones.

Finally, the prefrontal cortex region of this unit “plays an essential role in regulating the state of activity” in accordance with complex intentions and plans formulated with the help of speech (Luria, 1973, p. 86). Luria also claims that the prefrontal regions have “two-way connections,” both with the lower structures of the brain stem and diencephalon, and with all other parts of the cerebral cortex (Luria, 1973, p. 88).

Thus, Luria concluded that the “tertiary portions of the frontal lobes are in fact a superstructure above all other parts of the cerebral cortex” and that they “perform a far more universal function of general regulation of behavior” than other tertiary regions (Luria, 1973, p. 89). Luria further elaborated that the frontal lobes are “responsible for the orientation of an animal’s behaviour not only to the present, but also to the future,” and therefore to the most complex forms of active behavior (Luria, 1973, p. 91).

The final important feature of the frontal lobes is seen in the feedback mechanism or “reverse afferentation” as the necessary component of any organized action (Luria, 1973, p. 91), which has been described by the famous Russian physiologist Pyotr Anokhin (1935) in his theory of functional systems as the “action acceptor” apparatus. Luria concluded that the frontal lobes also had the function of “allowing for the

effect of the action carried out and verification that it has taken the proper course” (Luria, 1973, p. 93).

Interaction between the three principal functional units of the brain

Luria asserted that complex psychological processes have systemic structure and that each form of conscious activity represents a complex functional system and takes place through the concerted working of all three brain units (Luria, 1973).

Citing Leontiev (1959), Luria described the modern understanding of the structure of mental processes as having moved on from isolated faculties, being based instead on the model of “a *reflex ring or self-regulating system*” with afferent and effector components, so that “*mental activity assumes a complex and active character*” (Luria, 1973, p. 99).

In conclusion, one should say that the fascinating work of Alexander Luria is greatly underappreciated in neuroscience. While his compatriots Lev Vygotsky and Ivan Pavlov received much recognition and many accolades for their contributions in the fields of psychology and the biology of behavior, Luria remained relatively unknown.

Contribution to neuroscience

Luria’s insights into the functions of the human brain, the development of psychopathology, and managing neural injuries are extraordinary at many levels. His description of the bottom-up development of the brain and indicators for treatment provided critical direction for future research and are in line with later neural research by Paul D. MacLean (1990), who developed the theory of the triune brain. This is remarkable since (as far as we could establish) there is no reference to Luria’s research in the works of MacLean. The resemblances between MacLean’s well known theory and Luria’s lesser known theory are nothing short of remarkable. Luria’s focus on the role of the sensory impulses (primitive neural structures) resembles MacLean’s reptilian complex. The resemblances with the development of the paleomammalian and neomammalian complexes are also clearly identifiable.

It is noteworthy that Luria’s descriptions of the interplay between the advanced cortical system and the primitive system are more clearly and specifically articulated than in MacLean’s model, and that this interplay was identified prior to MacLean’s theories being published. One can only marvel at the insights of

Luria and speculate on the possible advances in neuroscience had the effects of ideological isolation not been the global phenomenon that they were.

References

- Akhutina, T. V. (2003). L. S. Vygotsky and A. R. Luria: Foundations of neuropsychology. *Journal of Russian and East European Psychology*, 41, 159–190.
- Anokhin, P. K. (1935). Проблема центра и периферии в физиологии нервной деятельности [The problem of centre and periphery in the physiology of nervous activity]. Gorky, USSR: Gosizdat.
- Ardila, A. (1991). Spanish applications of Luria’s assessment methods. *Neuropsychology Review*, 9(2), 63–69.
- Glozman, J. M. (2007). A. R. Luria and the history of Russia neuropsychology. *Journal of the History of Neurosciences: Basic and Clinical Perspectives*, 16, 168–180.
- Cowart, C. A., & McCallum, R. S. (1990). Testing Luria’s model: A reply to Naglieri and Das. *Journal of Psychoeducational Assessment*, 8(2), 172–176.
- Goldberg, E. (1990). *Contemporary neuropsychology and the legacy of Luria*. Hillsdale, NJ: Lawrence Erlbaum.
- Golden, C. J., & Berg, R. A. (1981). Interpretation of the Luria-Nebraska Neuropsychological Battery by item intercorrelation: VII. Receptive language. *International Journal of Clinical Neuropsychology*, 3(3), 21–27.
- Holowinsky, I. Z. (1993). Pedology in Europe and developmental psychology in Ukraine. *School Psychology International*, 14, 327–338.
- Homskaya, E. D. (2001). *Alexander Romanovich Luria: A scientific biography*. New York, NY: Kluwer Academic.
- Kuzovleva, E., & Das, J. P. (1999). Some facts from the biography of A. R. Luria. *Neuropsychology Review*, 9(1), 53–56.
- Leontiev, A. N. (1959). *Problems of mental development*. Moscow: Academy of Pedagogical Sciences of the R.F.S.F.R. (in Russian)
- Lewis, R. D., Hutchens, T. A., & Garland, B. L. (1993). Cross-validation of the discriminative effectiveness of the Luria-Nebraska Neuropsychological Battery for learning disabled adolescents. *Archives of Clinical Neuropsychology*, 8, 437–447.
- Luria, A. R. (1963). *Restoration of functions after brain injury*. New York, NY: Macmillan.

- Luria, A. R. (1966). *Higher cortical functions in man*. New York, NY: Basic Books.
- Luria, A. R. (1966). *Human brain and psychological processes*. New York, NY: Harper & Row.
- Luria, A. R. (1970). *Traumatic aphasia: Its syndromes, psychology, and treatment*. Berlin, Germany: Mouton de Gruyter.
- Luria, A. R. (1973). *The working brain: An introduction to neuropsychology*. New York, NY: Basic Books.
- Luria, A. R. (1976a). *Basic problems of neurolinguistics*. The Hague: Mouton de Gruyter.
- Luria, A. R. (1976b). *Cognitive development: Its cultural and social foundations*. UK: Cambridge University Press.
- Luria, A. R. (1976c). *The nature of human conflicts*. New York, NY: Liveright.
- Luria, A. R. (1976d). *The neuropsychology of memory*. Washington, DC: Winston.
- Luria, A. R. (1979). *The making of mind: A personal account of Soviet psychology*. M. Cole & S. Cole (Eds.). Cambridge, MA: Harvard University Press.
- Luria, A. R. (1982). Paradoxes of memory. *Soviet Neurology and Psychiatry*, 14, 3–13.
- Luria, A. R. (1987a). *The man with a shattered world: The history of a brain wound*. Cambridge, MA: Harvard University Press. (Original work published 1972)
- Luria, A. R. (1987b). *The mind of a mnemonist: A little book about a vast memory*. Cambridge, MA: Harvard University Press. (Original work published 1968)
- MacLean, P. D. (1990). *The triune brain in evolution: Role in paleocerebral functions*. New York, NY: Plenum.
- Solso, R. L., & Hoffman, C. A. (1991). Influence of Soviet scholars. *American Psychologist*, 46, 251–253.
- Tulviste, P. (1991). *The cultural-historical development of verbal thinking* (M. J. Hall, Trans.). Com-mack, NY: Nova Science.
- Tupper, D. E. (1999). Introduction: Alexander Luria's continuing influence on worldwide neuropsychology. *Neuropsychology Review*, 9, 1–7.
- Vygotsky, L. S., & Luria, A. R. (1994). Introduction to the Russian translation of Freud's *Beyond the Pleasure Principle*. In R. Van der Veer & J. Valsiner (Eds.), *The Vygotsky reader* (pp. 10–18). Oxford, UK: Blackwell. (Original work published 1925)
- Zhdan, A. N., & Homskaya, E. D. (1997). *Лурия Александр Романович [Alexander Romanovich Luria]*. Russia: Faculty of Psychology, Lomonosov Moscow State University. Retrieved from <http://www.psy.msu.ru/people/luria.html>

Работы А. Р. Лурия, упомянутые в статье

- Лурия А. Р. Восстановление функций после военной травмы. М.: АМН СССР, 1948.
- Лурия А. Р. Высшие корковые функции человека и их нарушения при локальных поражениях мозга. М.: Изд-во МГУ, 1969.
- Лурия А. Р. Маленькая книжка о большой памяти (Ум мнемониста). М.: Эйдос, 1994.
- Лурия А. Р. Мозг человека и психические процессы. Т. 1-2, М., 1963.
- Лурия А. Р. Нейропсихология памяти. М.: Педагогика, 1974. Т. 1; 1975. Т. 2
- Лурия А. Р. Об историческом развитии познавательных процессов: экспериментально-психологическое исследование. М.: Наука, 1974.
- Лурия А. Р. Основные проблемы нейролингвистики. М.: Изд-во МГУ, 1975.
- Лурия А. Р. Основы нейропсихологии. М.: Изд-во МГУ, 1973.
- Лурия А. Р. Парадоксы памяти (нейропсихологический этюд) / А.Р. Лурия. – М., 1999 // Хрестоматия по нейропсихологии : учебное пособие / ред. Е.Д. Хомская. – М.: Российское психологическое общество, 1999. – С. 205-208
- Лурия А. Р. Потерянный и возвращенный мир (История одного ранения). М.: Изд-во МГУБ 1971.
- Лурия А. Р. Природа человеческих конфликтов. М.: Когито-Центр, 2002.
- Лурия А. Р. Травматическая афазия. Клиника, семиотика и восстановительная терапия. М.: АМН СССР, 1947.
- Лурия А. Р. Этапы пройденного пути [Научная автобиография психолога.] М.: Прогресс, 1985.

A CLINICAL BIOPSYCHOLOGICAL THEORY OF LOSS-RELATED DEPRESSION

Robert A. Moss

Bon Secours St. Francis Hospital

Abstract

Opponent-process theory has been discussed in relation to a number of behaviors, including addiction. More recently, it has been suggested that this theory plays a primary role in explaining loss-related depression symptoms. The current paper discusses the foundation for this view from a clinical biopsychological perspective. It discusses both treatment implications and theoretical issues, concluding with a call for further investigation into the clinical biopsychological approach.

Keywords: depression, loss, opponent-process theory, clinical biopsychology, columnar model, dimensional systems model

Correspondence concerning this article should be addressed to Robert A. Moss, Bon Secours St. Francis Hospital, 1 St. Francis Drive, Greenville, SC 29601. E-mail: rmoss@emotionalrestructuring.com

Moss, R. A. (2013). A clinical biopsychological theory of loss-related depression. *International Journal of Neuropsychotherapy*, 1(2), 56-65. doi: 10.12744/ijnpt.2013.0056-0065

A Clinical Biopsychological Theory of Loss-Related Depression

The past 20 years has witnessed an explosion in brain research. This has largely been the result of new and improved technology in brain imaging. Despite these advances, the lack of a clear understanding of the neural code by which cortical processing occurs and memory is stored has led to ongoing debates as to how best to understand cortical functioning. A recent series of articles in *Psychological Review* discussing localist versus distributed processing views demonstrates the lack of agreement on how memories are stored (Bowers, 2009, 2010; Plaut & McClelland, 2010; Quian Quiroga & Kreiman, 2010).

In a 2006 article, Moss proposed the dimensional systems model (DSM) of cortical operations based on the cortical column (i.e., macrocolumn) as the binary unit involved in processing and memory storage. The model was subsequently updated and expanded to show how a columnar model can explain synchronicity and the role that the hippocampus plays in the formation of cortical memories (Moss, Hunter, Shah, & Havens, 2012). Based on this model, a clinical biopsychological model (CBM) has been proposed (Moss, 2001, 2007, 2010, 2013) for the understanding of psychological problems. Although loss and an inability to activate previously stored positive emotional memories represent one of the three areas highlighted in the theory, there has to date been no elaboration on how the model specifically applies to issues of loss and depression. The current paper is directed toward this goal.

Clinical Biopsychological Theory

The two cortices are considered to be semi-independent functioning minds. Within the suggested parallel processing design, whichever side can best respond to an ongoing situation is the side that assumes control of the ensuing response. Both hemispheres receive similar sensory input. The posterior lobes (i.e., the parietal, temporal, and occipital) are involved in processing and memory storage linked to incoming sensory information, while the frontal lobes are involved in analysis, planning, and response initiation as well as the memories associated with such activities. The left cortex processes sensory information in a detailed manner, with the result that it is slower than the right. The right cortex processes the information much faster, but in a global, less detailed manner. There is exchange of information between the sides, although this exchange can be both excitatory and inhibitory.

From a developmental perspective, there is initially only very limited information exchange between lobes within each side, and between the hemispheres. This allows each cortical area to fully develop its memories and associated processing prior to influence from more distal areas. Additionally, left hemisphere functions (e.g., receptive and expressive speech) will develop more slowly than those of the right hemisphere (e.g., non-verbal emotional analyses and responses), since there are a greater number of cortical columns and interconnections associated with left hemisphere processing. A final point is that the right hemisphere's global processing allows for faster responses if confronted with outside danger, which suggests that this side is biologically programmed to respond and assume behavioral control in a negative emotional state.

The left cortex primarily handles language functions, since these involve a high level of detail. Thus, the left posterior areas are involved in understanding (with associated memory storage) both spoken and written language, while the left frontal lobe controls spoken language, including the motor memories of language. Thus, thinking verbally is a left cortical process involving the frontal lobe and has been called the "verbal interpreter" (Moss, 2013). In contrast, the right cortex is involved in many less detailed, global functions, including non-verbal emotional analyses and responses. The right posterior areas are involved in understanding (with associated memory storage) non-detailed emotional behaviors shown by others, as well as in the storage of external (e.g., sight, sound) and internal (e.g., visceral responses) sensory memories connected with emotions. The right frontal lobe is involved in emotional expressions involving prosody and body language, including the motor memories of such expressions.

In reference to potential treatment foci, the clinical biopsychological model describes three areas: verbal-thinking, emotional-thinking, and interhemispheric congruence. Interhemispheric congruence refers to the ability to verbally label with accuracy all ongoing emotional states, and to have consistency in thoughts and feelings with regard to internal states and external stimuli. An example of healthy interhemispheric congruence is when an individual in a negative emotional state identifies and perceives the emotion as reasonable from a verbal-thinking standpoint. In such a case, the individual would be in the negative state, but have an absence of inner conflict/turmoil.

Finally, the CBM suggests three different ways depressive patterns can occur. They may arise from: (a)

an ongoing situation (e.g., argument, environmental danger), (b) the stimulation of negative emotional memories (e.g., trauma, problematic relationship memories), and/or (c) the failure to activate positive emotional memories (e.g., in the case of loss of desired relationship, loss of job). A thorough discussion of research supporting the CBM and its clinical applications dealing with negative emotional memories can be found in Moss (2007, 2013). The focus of the current paper is to provide a much more detailed discussion on loss and the failure to activate previously stored positive memories than has previously been presented (Moss, 2013).

Opponent-Process Theory

The concept of opponent-process was first discussed in relation to color vision (Hurvich & Jameson, 1957). It was first applied to motivational states related to addiction by Solomon and Corbit in 1973, with further elaboration related to other acquired motives introduced a year later (Solomon & Corbit, 1974). The basic concept is simple: With the onset of an affective state (whether positive or negative) tied to a stimulus, there is an opponent affective “slave” state that very gradually activates. With repeated presentation of the stimulus, the opponent affective state grows in its intensity. The result is that the perceived level of the original emotional state is reduced over time. In other words, the opponent-process offsets the original state, similar to adding together positive and negative numbers with the sum always tending toward zero. The larger the number of exposures and duration of the stimulus, the more extreme the opponent affective state will be if the stimulus is gone. However, there will be a deactivation of the opponent state over time provided the stimulus is not reinstated.

Solomon (1980) proposed the biological significance of such a process is that there are both psychological and physical costs of affective states. A reduction in affect would therefore reduce these costs. Moss (2001, 2013) has further suggested that such a process is important for survival in a different way: It prevents the organism from finding anything in the environment that leads to a continuous highly positive or negative state that would interfere with the organism continuing to engage its environment. Obviously, meeting all biological needs required for survival requires engaging with the environment.

In his 1980 article, Solomon commented on the success of the theory in predicting experimental outcomes. He noted that every experiment generated by

the model had failed to refute it. He mentioned its potential applications in additional areas, such as social philosophy and psychosomatic medicine. In spite of this, there remains to date a paucity of studies relating opponent-process theory to psychological problems other than addictions.

Loss and Depression

If one applies the opponent-process theory to clients’ experience of loss in relation to desired situations, the occurrence of depressive symptoms in such cases finds a simple explanation. Moreover, the longer the duration and the greater the initial intensity of the positive affective state associated with the desired situation, the greater the intensity and duration the depressive symptoms will be. For example, taking a week-long vacation that is very enjoyable leads to a mild sadness when it is finished, whereas the ending of a marriage of 20 years that was primarily positive results in much more severe despondency. Despite the simplicity of this concept, it seems to have eluded many professionals engaged in the treatment of depression, in which loss is a major component. A number of factors likely contribute to this lack of recognition.

A primary reason is that trying to eliminate the undesirable emotional state regardless of its cause has become the major goal for many treating professionals. While prescribing medication is the most common example of this, all too often it appears that non-physician therapists lack an effective conceptual model for use in the assessment and treatment of clients.

Obviously, loss is not the only factor leading to depression. As previously mentioned, both negative emotional memories and current situational factors may also be involved. Of these, it is current factors that seem to become the focus of treatment most often. This is likely a result of the clinician being unable to reinstate losses or do much directly in relation to the negative emotional memories.

Another reason opponent-process theory may have been overlooked in this area is that losses experienced by a client may not initially be viewed as permanent, so that little or no temporal association is perceived between the loss and depressive symptoms. For example, developing physical limitations due to injury or illness often results in immediate losses which are viewed as temporary in nature. The hope is that effective treatment will eliminate the physical problems. However, this is often not the case, and the condition

becomes permanent. Applying the opponent-process concept to this example, the depressive symptoms associated with the reality of not being able to engage in activities are initially offset by the cognitive expectation that there is no complete and permanent loss. A relatively mild dysphoric state would be expected at the time under such circumstances. If the client finally reaches the point of accepting the permanency of the condition, a much more severe depressive state will occur. Also, in the same way that expectations can influence the opponent-process in the face of conflicting reality, the absence of a real loss can influence the opponent-process even when loss is anticipated. An example of this can be seen in a person dealing with the anticipated death of a close family member. "Anticipatory grief" is much milder than and does not offset the severe grief experienced once the loved one dies.

If this understanding is correct, it is to be predicted that an individual who is told from the outset there is no hope of recovery from a non-life threatening physical condition should "grieve" the loss much faster than someone who is told the condition is likely temporary. Opponent-process theory would predict that several months after the event, an individual who has experienced permanent loss would be less despondent than someone who had anticipated the condition to be temporary. This is due to the negative opponent-process weakening for the "permanent," but not the "temporary," individual. In study results consistent with this prediction, Smith, Loewenstein, Jankovic, and Ubel (2009) found that six months after being released from hospital for colostomies, overall quality of life and life satisfaction were better for irreversible versus reversible colostomy patients. They suggested that knowing an adverse situation is temporary can interfere with adaptation, leading to the paradoxical situation where people who are better off objectively are worse off subjectively.

Another factor affecting the perception of a temporal association between loss and depressive symptoms is that losses seldom occur in isolation or simultaneously. Major life changes can lead to a number of losses "down the road." For instance, an individual experiences an event leading to posttraumatic stress disorder (PTSD). The PTSD symptoms interfere with that person being able to comfortably resume normal activities. With the loss of those normal activities, opponent-process theory would predict depressive symptoms to occur. The failure to continue normal activities may result in the loss of social contacts, job, home, etc. With each realized loss, there would be a worsening of depressive symptoms associated with that loss. In an example of a primary condition

leading to a different kind of loss, Kirchner and Lara (2011) found that loss of social functioning was more influential in terms of depression than loss of physical functioning, in 65 multiple sclerosis patients.

A final factor is that some losses occur as a natural corollary of what others consider positive life events or changes, and may therefore go unnoted at the time. For instance, accepting a new, desired job results in losing former relationships. Even accomplishing a major goal, such as an educational degree, results in the goal being lost, and some despondency is likely to occur. In a longitudinal study (Nicholson, 1999) of postpartum depression, 24 women were interviewed at one, three, and six months after the birth. The findings were described as paradoxical in that the women were happy to be mothers, but unhappy with the losses that early motherhood inflicted upon their lives. There were losses of autonomy and time, appearance, femininity and sexuality, and occupational identity. The author suggested that if the losses were taken seriously and the women were encouraged to grieve the losses, the women and their social support network could view this as a potentially healthy process as opposed to a pathological response to a "happy event." This suggestion is consistent with the discussion of treatment implications that proceeds in the next section.

One further consideration should be noted. In the case of a primarily negative situation, the end of that situation would be expected to lead to a positive affective opponent-process. Yet while not leading directly to depressive symptoms, the failure to experience grief in certain situations in which others believe it should be experienced can lead to feelings of guilt. Such guilt can then contribute to increased depression. An example is when a relationship with a parent or spouse that was primarily very negative ends due to that individual's death, opponent-process theory predicts positive feelings such as relief and/or happiness. A client who understands that such a reaction is normal as opposed to pathological may well avoid the additional distress of guilt and anxiety.

Treatment Implications

The first recommended step in treating loss-related depression is education. The client should be presented, either verbally or with the aid of graphics, a brief explanation of the rationale of the opponent-process theory, in which a positive emotion occurs in connection with a particular situation or relationship together with a gradually increasing opponent negative

emotion. For example, the initial ecstasy of falling in love will, over the years of a healthy marriage, transform into a less extreme feeling of contentment. It is explained that the positive emotion remains constant, but the opponent negative emotion gets stronger, subtracting from the positive. If the marriage ends, the positive emotion is lost, with only the opponent negative emotion remaining. It is further explained that if the loss is accepted as permanent, the negative opponent emotion will gradually deactivate over time. This suggests to clients that their current depression is a normal reaction to the loss while simultaneously suggesting improvement in the future (the interested reader will find a detailed discussion of how to educate clients in the Appendix). Another point that needs to be related concerns the expected course of loss-related depressive symptoms. For those clients with physical problems which will progressively worsen, or for those who are expected to sustain additional losses (e.g., bankruptcy due to inability to work), it is important to convey that acceptance can only be obtained in relation to those aspects already lost. Such clients should be given the expectation that increased depressive symptoms are expected with any additional losses.

A further recommended component of education is that the client be told what the actual emotional experience will be like during the gradual deactivation of the opponent-process emotion. A client may take the position that allowing himself or herself to experience depression is like an admission of defeat. The loss of motivation that normally accompanies depression may thus be interpreted as giving up on life, prompting anxious attempts at resistance. For this reason it is critical that the client comprehend the overall emotional reactions that occur in each of us when we deal with significant losses. Such an understanding will effectively reduce anxiety levels, since the negative emotional experience will be perceived as normal and expected. Consistent with mindfulness and acceptance views, this results in less judgment of negative emotional reactions as “bad” and greater tolerance of depressive symptoms.

Even when experiencing only one significant loss, it is important for the client to realize that one does not go through the various stages of the grief process in a smooth and uniform manner. For while the overarching pattern and trend of emotions follows the described phases, emotions perceived on an hour-to-hour and day-to-day basis may seem more erratic.

An important role for therapists is in assisting clients to determine whether losses are truly permanent.

As already pointed out, accepting the reality of a loss being permanent is crucial in allowing the client to get on with the grieving process and adapt to the loss. Although important, assisting clients in this area may prove difficult for therapists since it is not always evident whether losses are permanent. Obviously it is the client who must reach any such conclusion and the therapist should not force the issue. The therapist's role is to help the client sort through the facts, being realistic about the probability versus possibility of the loss being reversed.

A final point is that the therapist may assist the client in fostering a different kind of hope than that of reinstating the loss. This may involve viewing the loss as closing a chapter in one's life, but starting a new one based on what capacities remain. For example, a client who is spiritually oriented may come to view losses as an opportunity to grow in this regard. Those familiar with a constructivist view know the value of assisting the client in constructing meaning in response to life events.

Theoretical Considerations

The theory of depression that most closely aligns with the opponent-process view canvassed here is the loss of reinforcing activities proposed by Lewinsohn (1974). This is a behavioral conceptualization of depression in which a low rate of response-contingent positive reinforcement (RCPR) causes and maintains depression. Lewinsohn suggested that lower-level antecedents to a low RCPR included skill deficiencies (e.g., in social skills) that limit the elicitation of environmental rewards, an individual's lack of capacity to enjoy potentially rewarding events, and an environment lacking desirable reinforcers. This last aspect was considered to be the result of personal loss, socio-economic restrictions, and/or significant life changes (Lewinsohn, 1974).

The current opponent-process theory of loss-related depression differs in several respects from this theory. Whereas the Lewinsohn theory views the lack of RCPR as the cause of depression, the current theory does not. In fact, an opponent-process conceptualization provides an explanation of the exact cause of Lewinsohn's proposed deficiency in enjoying rewards. It suggests that the inability to experience positive reactions to previously reinforcing activities is the result of the pervasive impact of a strong negative opponent-process emotion. This is viewed not as a deficiency of the individual; rather, it is a naturally occurring reaction to significant loss. Moreover, the current

theory views the internal opponent-process affective state as the cause of depressive symptoms, rather than a lack of available reinforcement. For example, the loss of a significant relationship may not limit the client's access to movies, parties, video games, etc., yet the client finds reduced interest and enjoyment in these. As a result, the client may discontinue these for a period of time.

With regard to the neurophysiological causes of an opponent-process, there can only be speculation. The clinical biopsychological viewpoint as explained by Moss (2001) is that the positive emotional memories of the lost stimulus housed in the right posterior cortex can no longer be activated, resulting in the opponent-process affect. This implies that positive emotional cortical memories are initially formed due to the reinforcing aspects of the stimulus. The actual positive emotion is the result of subcortical activation, probably involving the septal and amygdala regions and/or the mesolimbic dopaminergic system with cell bodies in the ventral tegmental area.

It is likely that the interactions of the amygdalae and septal regions (either unilaterally or bilaterally) are related to the opponent-process (see Grossberg & Schmajuk, 1987). Similarly, the ventral tegmental area has connections with the amygdala and nucleus accumbens. Hollerman & Schultz (1998) observed that dopamine appears to signal whether reward exceeds or falls short of expectations. Unexpected reward leads to a strong dopamine signal in the ventral tegmental area. With repeated reward presentation, the signal decreases. Conversely, non-appearance of an expected reward leads to a reduced dopamine signal. Although these findings were interpreted to mean that expectancy is the factor leading to increased and decreased signaling, an alternative interpretation is that these phenomena are the result (or possibly partial cause) of the affective opponent-process. Mink (2008) notes that the ventral striatum receives input from the limbic and olfactory areas of the cortex, including the amygdala and hippocampus. The ventral striatum (including the nucleus accumbens) has reciprocal connections with the ventral tegmental area (part of the mesolimbic dopamine pathway). The ventral pallidum receives input from the ventral striatum and amygdala, with its output going to the dorsomedial nucleus of the thalamus, which projects back to the limbic cortex. The exact nature of the role of the overall system in emotion is not known, although Mink suggests that the inhibitory output of the ventral pallidum may act to suppress or select potentially competing limbic mechanisms. Suppression and selection of competing limbic mechanisms are certainly functions consistent

with an opponent-process.

Overall, although the neural factors cannot be specified, there does appear to be sufficient evidence for the validity of the opponent-process theory of emotions. To conclude, the current paper has emphasized the relevance of this theory in the development of loss-related depression, including how it relates to psychotherapy. It is hoped that this elaboration will lead to the further interest of clinicians in the clinical biopsychological approach. It is also to be hoped that the brief exploration of the broader potential of opponent-process theory presented here will motivate further applied research into this brain-based approach to psychotherapy.

References

- Bowers, J. S. (2009). On the biological plausibility of grandmother cells: Implications for neural network theories in psychology and neuroscience. *Psychological Review*, *116*, 220–251. doi:10.1037/a0014462
- Bowers, J. S. (2010). More on grandmother cells and the biological implausibility of PDP models of cognition: A reply to Plaut and McClelland (2010) and Quian Quiroga and Kreiman (2010). *Psychological Review*, *117*, 300–308. doi:10.1037/a0018047
- Grossberg, S., & Schmajuk, N. A. (1987). Neural dynamics of attentionally modulated Pavlovian conditioning: Conditioned reinforcement, inhibition, and opponent processing. *Psychobiology*, *15*, 195–240.
- Hollerman, J. R., & Schultz, W. (1998). Dopamine neurons report an error in the temporal prediction of reward during learning. *Nature Neuroscience*, *1*, 304–309.
- Hurvich, L. M., & Jameson, D. (1957.) An opponent-process theory of color vision. *Psychological Review*, *64*, 384–404.
- Kirchner, T., & Lara, S. (2011). Stress and depression symptoms in patients with multiple sclerosis: The mediating role of loss of social functioning. *Acta Neurologica Scandinavica*, *123*, 407–413.
- Lewinsohn, P. M. (1974) Clinical and theoretical aspects of depression. In K. S. Calhoun, H. E. Adams, & K. M. Mitchell (Eds.), *Innovative treatment methods in psychopathology* (pp. 63–120). New York, NY: Wiley.
- Mink, J. W. (2008). The basal ganglia. In L. Squire, D. Berg, F. Bloom, S. Du Lac, A. Ghosh, and N. Spitzer

- (Eds.), *Fundamental neuroscience* (pp. 725–750). New York, NY: Academic Press.
- Moss, R. A. (2001). *Clinical biopsychology in theory and practice*. Greenville, SC: Center for Emotional Restructuring.
- Moss, R. A. (2006). Of bits and logic: Cortical columns in learning and memory. *Journal of Mind and Behavior, 27*, 215–246.
- Moss, R. A. (2007). Negative emotional memories in clinical treatment: Theoretical considerations. *Journal of Psychotherapy Integration, 17*, 209–224. doi:10.1037/1053-0479.17.2.209
- Moss, R. A. (2010). Clinical biopsychology: Could a grand theory actually exist to allow true psychotherapy integration? *Independent Practitioner, 30*, 67–71.
- Moss, R. A., Hunter, B. P., Shah, D., & Havens, T. (2012). A theory of hemispheric specialization based on cortical columns. *Journal of Mind and Behavior, 33*, 141–172.
- Moss, R. A. (2013). Psychotherapy and the brain: The dimensional systems model and clinical biopsychology. *Journal of Mind and Behavior, 34*, 63–89.
- Nicholson, P. (1999). Loss, happiness and postpartum depression: The ultimate paradox. *Canadian Psychology, 40*, 162–178.
- Plaut, D. C., & McClelland, J. L. (2010). Locating object knowledge in the brain: Comment on Bower's (2009) attempt to revive the grandmother cell hypothesis. *Psychological Review, 117*, 284–290. doi:10.1037/a0017101
- Quian Quiroga, R., & Kreiman, G. (2010). Measuring sparseness in the brain: Comment on Bowers (2009). *Psychological Review, 117*, 291–299. doi:10.1037/a0016917
- Smith, D. M., Loewenstein, G., Jankovic, A., & Ubel, P. A. (2009). Happily hopeless: Adaptation to a permanent, but not to a temporary, disability. *Health Psychology, 28*, 787–791. 10.1037/a0016624
- Solomon, R. L. (1980). The opponent-process theory of acquired motivation: The costs of pleasure and the benefits of pain. *American Psychologist, 35*, 691–712.
- Solomon, R. L., & Corbit, J. D. (1973). An opponent-process theory of motivation: II. Cigarette addiction. *Journal of Abnormal Psychology, 81*, 158–171.
- Solomon, R. L., & Corbit, J. D. (1974). An opponent-process theory of motivation: I. Temporal dynamics of affect. *Psychological Review, 81*, 119–145.

Appendix

Educating the Client With Regard to Loss-Related Depression (from Moss, 2001)

A major source of depressive symptoms is tied to the inability to activate previously stored positive emotional memories. This is created by experiencing loss in one's life in some form or fashion. This loss may involve relationships, material things, goals, and/or beliefs.

Regardless of the source, the basic patterns of these grief reactions are consistent. I believe the most severe form of this grief reaction occurs when one is confronted with reality that conflicts with basic beliefs. However, life experiences that lead to the loss of basic beliefs typically require other multiple losses involving relationships, material things and goals. Thus, the overall process may take years of an individual experiencing multiple grief processes tied to each individual loss. I believe it is important for both therapist and client to be aware of these facts. In explanation, once the client understands the normal grieving process, there is often the misperception that one will move smoothly through the various "phases" and reach the level of acceptance within several months. However, with additional losses there will be additional grief reactions and this can be one factor contributing to many of the recurrent depressive episodes over a period of years. Of key importance is the client's realization that he is going through the normal emotional processes tied to losses.

A frequently observed example of the loss of a basic belief relates to one's ability to control situations. This belief may be characterized by the statement, "If I work hard enough at something, I should be able to control it." Obviously, clients encounter any number of situations which cannot be controlled by their efforts and this can eventually lead to their acceptance that they are not in control. If this reality based belief is emotionally accepted, there will be a worsening of the grief reaction independent of any additional losses.

An additional important distinction is between what has been called "anticipatory" versus actual grief. Anticipatory grief means the loss has not yet occurred, or it is uncertain whether the loss that has occurred will be permanent in nature. This time can be difficult

emotionally since the client is in a holding pattern, being in limbo. During this time it is not possible to make plans for the future because of the uncertainties. The overall impact is there is a low grade depression characterized mainly by dysphoric mood. This is the reason that many, if not most, clients assume they have already been experiencing a grieving state given they have had the dysphoria during the time they are anticipating the loss. They are then shocked when the loss is actually “emotionally” accepted as real because of the more extreme nature of the negative emotions. In other words, when it is truly accepted that something once very positive is actually lost with no hope of recovery, there will be severe distress experienced almost immediately.

Often a client finds himself in a position where he feels that allowing himself to experience depression is like an admission of defeat. The client may believe the experience of losing motivation that accompanies depression means he has given up on life and will never function again if he does not actively fight against it. This is the reason it is critical that the client comprehend the overall emotional reactions that happen to each of us when we deal with significant losses. With such an understanding, there can be much less anxiety experienced by the client since the negative emotional experience can be perceived as normal and expected.

Even when the client is experiencing only one significant loss, it is important for the client to realize that one does not go through the various stages of the grief process in a smooth and uniform manner. Instead, these emotional changes are experienced in a way that the predominant pattern and trend of emotions follows the described phases, though the hour-to-hour and day-to-day perceived emotions may seem more erratic. The following description of the stages serves as the basic information the current author recommends sharing with the client.

Denial - This stage is marked by the fact that emotional the loss has not been accepted by the right cortical hemisphere. In other words, the loss has not emotionally “sank in.” More of an emotional numbness may be experienced at this time. Although the client may be able to express verbally from the left hemisphere that he is aware that a loss has occurred, this statement is made without any strong negative emotions. The denial phase can last for days to weeks in individuals having a known permanent loss.

Sadness, grief, and emotional pain - Following the emotional denial of a loss, one usually feels sad, blue and melancholy. I believe this is the time the right hemisphere “feels” the loss due to confronting

environmental situations which confirm the loss. For most people these feelings are also accompanied by a number of other changes. There is often a change in sleeping patterns, such that one individual may sleep very little while another may sleep excessively. Appetite changes are common, such that some eat much more and others may lose the desire to eat. Energy level drops such that getting out of bed in the morning may be a major task. Individuals at this time may feel little to no motivation to do things, and find themselves having to push to accomplish what may have in the past been considered a minor task. Therefore, during this time the accomplishment of such “minor” things should be regarded by both therapist and client as major achievement. Additional difficulties include crying spells or feeling like crying. In fact, during true grieving the crying comes from a very deep level that can best be described as sobbing. Most people find that crying in this manner is cleansing despite the fact that the negative emotions continue. Crying spells may be associated with specific incidents, although they frequently occur when there is nothing that seems to have happened. Feelings of enjoyment in activities decreases, with some clients going through the most extreme grief find no enjoyment at all. The client often perceives that he is simply “going through the motions” in his activities. Individuals often lose interest in sexual activities.

A particular difficulty during these times involves death thoughts. Although these are usually transient in nature, they do cause a great deal of concern for the individual and those around them. Feeling like, “If life is going to feel this way, I would prefer not to exist” is common. People often find themselves crying out to God to please remove them from the world. An individual going through such deep grief often feels the pain is too great a problem with which to deal. (Obviously, the therapist should stay aware of any true intentions of suicide and plans to kill oneself since this may be perceived by a few clients as the only way to escape. However, it is assumed that any therapist reading this book should be competent in this area of assessment and the ways to address such problems.)

During this time one of the most distressing aspects is the feeling of isolation/loneliness, as if no one can understand the degree of emotional pain that is being experienced. Once this is voiced to the client, he should be told that the pain is not endless or bottomless, although at times it seems this way. The pain does have its limits. The client will at times find it important to be alone with the emotional pain. The client can be reminded that we were never designed to experience negative emotions that cannot be survived

and that the pain will eventually end. The pain will come in an ebb and flow pattern. Therefore, whenever it is there, the client can allow himself to deal with it. When it is absent, the client should feel no obligation to pull it back up. He is simply allowing himself to experience the various emotions as he goes through the patterns.

Although the client is generally miserable at this time, there are things that can be done to manage better the sadness and grief. Foremost is that the client be nice to himself. He should be made aware that just spending time pampering himself is quite justifiable. Although engaging in previously enjoyable activities may only represent a distraction at this time, the client can still be encouraged to do these things. This is based upon the fact that he is going a time based process and nothing can be done to speed up the grieving process. Thus, distraction can be healthy and give a brief respite from the emotional pain. Above all, the client needs to be encouraged to refrain from attacking himself by being critical. Individuals should be made aware that they need their own love and support during this time.

Clients often state that many times they experience anxiety and deep feelings of emptiness, and they wish to get out and do things in an attempt to reduce these feelings. However, upon going out they usually find they are still miserable. Simply put, people going through a grief reaction find themselves miserable wherever they go. Therefore, it is wise to have the client maintain a regular and reasonable schedule at this time. Often there will be little enjoyment in maintaining this schedule and one feels he is simply going through the motions. Although these things do not necessarily feel enjoyable to do, maintaining a reasonable schedule is one of the best ways to keep oneself moving ahead. I often express this to the client that he is going to feel miserable and his only choice is whether he accomplishes something by the end of the day or accomplishes nothing. Most people find it desirable to accomplish something since the emotional state will remain the same no matter what.

During this time the client should be encouraged to watch nutrition and rest. Eating a balanced diet and insuring that there are adequate periods of sleep are important. The client should be encouraged to avoid doing things in excess, with moderation being the key. The client should be encouraged to avoid substances such as alcohol during this time. Alcohol may seemingly make the client feel better on the short run, but can create additional problems and actually intensify unnecessarily the depression. Although one may not

have had difficulty in alcohol use in the past, during this time the depressant effects of alcohol can worsen the emotional reactions to loss or lead to unhealthy impulsive behaviors.

Anger - Having anger toward loss is common. The increase in anger will usually occur following an extended period of sadness and grief. The client needs to be aware that the anger and rage feelings accompanying the grief process are qualitatively different from the irritability that is experienced throughout the sadness phase. The irritability is better explained as one's inability to deal with additional stressors since the individual is already dealing with the major effects of significant loss. In other words, irritability reflects one's inability to cope with additional stimulation from external sources. However, the anger and rage feelings experienced in this stage are much more intense and are not necessarily tied to any identifiable external factor.

The emergence of the anger and rage should be viewed by the therapist as a positive sign for the client. In explanation, this indicates the client is progressing through the grief process and suggests there will be only a few more months before the level of acceptance is reached.

The client will experience variations in the depression and anger feelings such that the anger feelings will increase in duration and frequency. This will follow the pattern in which the dysphoric mood will be much milder than that originally experienced and will be interspersed with the increasing anger. During the times of anger, the client can be made aware that it is appropriate to separate himself from others, particularly if the anger is intense. I often suggest the client go to a room alone and talk aloud about the loss, even to the point of screaming, if desired. The client may do things like beating a pillow or other appropriate object, with this sometimes leading to a release and improvement in overall feelings. In fact, the only time I see such behaviors prove to be of benefit is during the acute anger tied to grief. I have seen similar suggestions made to clients as a means of dealing with harbored resentment toward significant others, though the current author has never seen this lead to any meaningful reduction of resentment.

The client can be made aware that during the time he is experiencing negative emotions, it is important to give others permission not to fix him. Many times the people closest to the client see the negative emotional reactions and feel the need to provide some suggestions in hopes of stopping the client's pain. Unfortunately, this often leads to these individuals giving

advice to the client, such as, "Why do you put yourself through this?" or "Think about the good things you have and it could be worse." Although these friends and family members may seem to have the best of intentions and may be trying to help, such comments tend to make the client feel worse. The client usually feels he is being told to quit feeling sorry for himself and is bringing others down as well. In this regard, recommend to the client that he let the people around him know that he will assume responsibility for telling them what they can do, if anything. The client can further state that the best thing his friends and family can do is to just be there and let him feel comfortable in expressing whatever the feelings may be at the moment, even if it involves crying. The client can tell them that their advice is seen as good intentions, but he has no choice but to have the negative feelings as they occur. Importantly, the client should say to these significant others that he will improve over time and it simply takes time to heal. The best time for the client to relate this information to those around him is when he is not experiencing extreme negative emotions and when he appears to be in total control.

Acceptance - Over a period of time, usually many months for major losses and even years for multiple sequential losses, a person finds much more internal calmness and peace. There is an acceptance that the loss has occurred, but there are many other things in life that remain or will be new. The client will once again be experiencing positive emotions on a more regular basis, with a feeling of increased internal strength in association with putting things into perspective. The client will tend to view himself as being able to face future possible losses with the knowledge that he can cope with whatever happens.

In the present day when both professionals and lay individuals have been lead to believe there should be a cure for everything, I believe many therapists have either not been trained or have lost sight of the fact that extreme negative emotions do occur and are part of a normal pattern. I have observed many instances where people going through unrecognized grief reactions were placed on medications to reduce the depression only to find that it had little impact. Over the period of many months and numerous medication changes,

the person slowly improved, returning to more neutral levels of emotions. I believe it is often erroneously assumed that the "right" medication combination has been reached without the realization that the individual would have demonstrated this same pattern of improvement in association with a normal grieving process, finally reaching the level of acceptance.

There is some similarity to the problem of prescription antibiotics being given to patients for whom it will have no beneficial effects other than to make the patient feel something is being done to treat his illness. Such practices are now criticized since resistance to antibiotics has developed at an alarming pace as a result. In relation to antidepressants, the client, doctor and those close to the client want some visible sign that the perceived problem is being treated. Over time and with eventual improvement, it is often believed by the client that he must maintain these for the rest of his life to manage a chemical imbalance. If additional grief reactions occur, it is then assumed that the medication has lost its effectiveness and a new or additional medication is required, each with its own side effects. There appears to be a lack of understanding that there is no medication that can remove such grief reactions since these are normal and natural, and these must run their course.

I do not wish to communicate that I am against the use of psychotropic medications. I am advocating that they should be used in conjunction with appropriate information being given to the client. For example, if a person clearly understands normal emotional reactions tied to losses and other sources of negative emotions, there is the realization that specific psychotherapeutic procedures may be appropriate or that time will heal. In this case, the client sees the medication as something to be used for whatever symptomatic relief it provides, but also expect it to have only limited benefit. Once improved, hopefully the client will not have the fear that discontinuing the medication will necessarily result in a return of problems. In closing, I believe it is important that people be aware that negative emotions do exist for all human beings and the more understanding we have, the more capable we are of accepting the normal variations in both positive and negative emotions with realistic expectations.