Personality Disorders: Theory, Research, and Treatment
2015, Vol. 6, No. 4, 347–355

© 2015 American Psychological Association
1949-2715/15/$12.00 http://dx.doi.org/10.1037/per0000106

Mentalization in Borderline Personality Disorder: From Bench to Bedside

Carla Sharp and Allison Kalpakci
University of Houston

The current special issue focuses on the potential of mentalizing as a translational construct for the understanding and treatment of borderline personality disorder (BPD). Mentalizing, which provides the central construct around which mentalization-based therapy (MBT) and theory is organized, refers to the capacity to meaningfully reflect on the mind of others as well as the self. In this introductory article to the special issue, we begin by discussing the need for and nature of translational research. We contend that translational research in mental health and personality disorder, in particular, lags behind that of other medical disorders because of the challenges inherent in meeting translational criteria. We discuss these criteria and we demonstrate the potential of the construct of mentalizing to meet translational criteria in the context of BPD. This article thereby provides the context for the other 3 papers in this special issue which each represent a different point along the translational spectrum. In all, our aim is to provide a foundation for the further evaluation of the usefulness and potential of mentalizing as translational construct in the context of BPD.

Keywords: borderline personality disorder, mentalization, translational research

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

The Need for and Nature of Translational Research

Translational research is defined as the "effective translation of the new knowledge, mechanisms, and techniques generated by advances in basic science research into new approaches for prevention, diagnosis, and treatment of disease [which is] essential for improving health" (Fontanarosa & DeAngelis, 2002, p. 1728). This process of utilizing knowledge from "bench-to-bedside" to develop new interventions or treatment options is typically referred to as the first translational block (T1) in the clinical research enterprise (Sung et al., 2003).

With the launch of the Clinical and Translational Science Award (CTSA) program by the National Institutes of Health (NIH) in 2006, a new generation of research centers and programs has been established, not only in the United States (US), but also in Europe (Woolf, 2008). Currently 62 CTSA centers have been funded in the US (NIH, 2014). In the US, 5,886 unique grants were awarded for CTSA-Supported Work—of those, 437 were from NIMH for mental health problems, equaling only $320 million (CTSA Consortium, 2011) of the full $3,856 billion spent. And although a steady decrease has been observed in mortality rates of cardiovascular disease, stroke, and cancer thanks to translational efforts, the evidence for reduced morbidity or mortality from any mental illness is weaker (Insel, 2009; National Cancer Institute, 2008; National Heart, Lung, and Blood Institute, 2007; Kessler, Berglund, Borges, Nock, & Wang, 2005; Kessler, Demler, et al., 2005). The evidence is also limited for reduction in disability in most mental health patients in the United States despite increases in the use of treatment (Insel, 2009). This state of affairs is perhaps most true for personality disorders, with the majority of translational efforts focusing on depression (Warden, Rush, Trivedi, Fava, & Wisniewski, 2007), schizophrenia (Lieberman et al., 2005), and bipolar disorder (Thase, 2007). That mental health has fallen behind other medical conditions, and that personality disorders are at the bottom of this heap, can be understood against the background of several criteria that need to be met for translational research to succeed. A review of these criteria exposes the many challenges inherent in conducting translational research in personality disorder and other mental disorders given the complexity of these disorders. And although much research is still needed, it also highlights the potential of constructs such as mentalizing and reward function to help move forward the translation of basic sciences to intervention science.

Criteria of Translational Research

First, it is widely acknowledged that translation not only takes place from bench-to-bedside, but also from bedside-to-bench. In other words, basic scientists discover new biological targets or develop new tools and constructs for use with patients, while at the same time, the observations from clinical researchers and clinicians are used by basic scientists to identify gaps in basic knowledge and tools (Cicchetti & Toth, 2006).

Second, discoveries at the bench are not always biological in nature. Whereas translational science is often equated with the biological sciences, we emphasize here a broader understanding of translational sciences (Gunnar & Cicchetti, 2009). For instance, a developmental psychologist (a basic scientist who may have little interest in clinical phenomena) may develop a head camera to study visual experience in toddlers (Yoshida & Smith, 2008), which, in turn may be used by a clinical researcher to examine idiosyncratic visual experiences in autistic children. Or, a primatologist may discover a basic social–cognitive capacity like theory

Carla Sharp and Allison Kalpakci, Department of Psychology, University of Houston.

Correspondence concerning this article should be addressed to Carla Sharp, Department of Psychology, University of Houston, Houston, TX 77204. E-mail: csharp2@uh.edu

of mind in chimpanzees (Premack & Woodruff, 1978), which is then transported into the clinical sciences to better understand social deficits associated with autism (Baron-Cohen, Leslie, & Frith, 1985). In this broad view of translational science, mental phenomena are not simply reduced to brain phenomena, and even when biological targets are the focus of interest, "healthy reductionism" (Grigorenko, 2009), which focuses on capturing the Complexity of biology × Environment interactions instead of linear relations between pathogens and behavioral phenotypes, is used.

Third, translational research is in almost all cases interdisciplinary. Interdisciplinary research refers to a study or group of studies by scholars from two or more distinct scientific disciplines (Aboelela et al., 2007). To be effective, the research is based on a conceptual model that links or integrates theoretical frameworks from those disciplines, uses study design and methodology that are not limited to any one field, and requires the use of perspectives and skills of the involved disciplines throughout multiple phases of the research process (Aboelela et al., 2007). With increasing specialization within fields, interdisciplinary research is becoming the rule rather than the exception, but it is not without its challenges. A major barrier to interdisciplinary research (and therefore translational research) is the lack of crosstalk between disciplines. A solution to this problem is the establishment of interdisciplinary teams of investigators that can systematically address translational questions (Cicchetti & Toth, 2006). Even then, researchers from different disciplines will use the language of their disciplines. As Cohen and Insel (2008) pointed out, translational research is often in need of a "translator." Such a translator should be a construct that can easily move between disciplines. A good example in this regard is "reward processing" which can be studied by cell biologists and sociologists alike (Sharp, Monterosso, & Montague, 2012).

Fourth, in the context of mental health, translational approaches often consider the contribution of the brain in defining and explaining a disorder. Although biological approaches are not the only avenue open to translational research, a biological approach to mental disorders allows for the investigation of the pathophysiology of the disorder across multiple levels of analyses. In this approach, basic science develops models for understanding normative behavior in healthy individuals. These models are then applied to psychiatric populations to identify biomarkers or endophenotypes that point to the mechanisms of attention, memory, and other higher cognitive processes underlying the behavioral phenotypes of psychiatric disorder. Biomarkers refer to characteristics that are measured objectively as an index of a pathogenic process or as a response to treatment (Carter et al., 2011), whereas endophenotypes refer to well-specified physiological or behavioral measures that occupy the terrain between disease symptoms (behavioral phenotypes) and risk genotypes (Insel & Cuthbert, 2009). The final step in the translational approach involves the testing of the biomarker as a mechanism of change in clinical trials. From this perspective, for psychopathology, the modern translational goal is to explain mental phenomena at multiple levels ranging from neurobiological to psychological, but with enough detail so that consequences at one level induce testable predictions at another (Sharp, Monterosso, & Montague, 2012). Predictions and interactions within the individual (e.g., interactions between genes and neural circuitry) will be important in this regard, but it is especially crucial to increase understanding of the interactions between biology, psychological phenomena and the environment (Cicchetti & Toth, 2006; Insel, 2009). In all, the interest in identifying endophenotypes as targets of behavior and molecular genetics research on mental disorders may have a facilitative effect in building bridges between basic science (bench) and practice (bedside; Grigorenko, 2009), but it is important to integrate the psychological and environmental levels of analyses for this to be a successful pursuit.

Related to the criterion of the identification of early biomarkers of disease and the identification of endophenotypes that can translate genes into observable behavior, a fifth criterion of translational research is that it works best when it is developmental (Cicchetti & Toth, 2006; Gunnar & Cicchetti, 2009; Insel, 2009). We have a long tradition of focusing our research efforts on adults with full-blown psychiatric disorder and entrenched cognitive and behavioral patterns. Insel (2009) likens this problem to diagnosing coronary artery disease by a heart attack. By developing biomarkers for early identification of those at risk and targeting the basic processes we believe to be most predictive of the development of disorder, we have the opportunity to prevent the most disabling aspects of mental disorders.

Another criterion of translational research when it works well is that it allows for the development of pathways to personalized treatment—essentially, it should answer the question "what works for whom"? (Fonagy et al., 2005). Here, the translational researcher is interested to know how a particular biomarker or endophenotype is moderated by a variety of factors including clinical history, the environment, psychological factors, genomics, physiology, proteomics, and brain circuits. Translational research also requires somewhat seamless transition from typical to atypical samples—or more radically—from one species to another. A well-known example in this regard is how fear and habituation responses in animals were used to develop behavioral approaches to treat panic symptoms in humans (Barlow & Allen, 2004). New interventions based on basic science findings therefore may often begin first through evaluation in animals and then progress through typical human samples, mildly impaired clinical samples, and then more severe clinical samples before being broadly implemented (Tashiro & Mortensen, 2006). Therefore, for a translational construct to be optimally useful, the basic processes that explain variation in typical behavior must also be shown to explain between-groups differences with atypical behavior, and within-group variation in atypical populations.

A final criterion which has turned out to be an obstacle impeding the translation of advances in cognitive neuroscience to clinical research and practice is that research instruments (e.g., functional MRI tasks) are not always suitable "off the shelf" for clinical application and therefore might hinder progress in identifying clinically relevant targets of treatment, biomarkers, or endophenotypes (Cohen & Insel, 2008). For experimental tasks and probes to serve a true translational function, they must be robust and sensitive to produce reliable results in both typical and atypical (clinical) populations, detect changes in clinical state necessary to assess the effects of treatment, and be feasible and appropriate for use in challenging populations.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Mentalizing as Translational Construct

In all then, translational research seeks to uncover domains of functioning or mechanisms or constructs that can be studied across the full spectrum of the translational process all the way from basic science (e.g., animal studies, bench studies, laboratory studies in basic psychological sciences) and typical human behavior, to at-risk populations, right through to the most severe psychiatric disorders. Moreover, such a construct must refer to a psychological or biological process that is modifiable or malleable so that it can be a realistic treatment target, while at the same time it must be central in the chain of causation of the condition. Here, the challenge to translational research for mental health problems becomes clearly apparent. It is hard to think of many constructs that have been empirically defined in terms of their genomics, neurocircuitry, neurocognitive functioning, psychological function, and behavioral phenotype, while at the same time demonstrating malleability as treatment target. In this special issue, although we acknowledge that much work is still to be done, we explore the appropriateness and potential of mentalizing as a construct that may be translational in this regard.

The concept of mentalizing has been in use in psychoanalytic literature since the 1970s (Allen, 2003; Marty, 1991; Marty & M'Uzan, 1963) to refer to the process of mental elaboration, including symbolization, which lead to the transformation and elaboration of drive-affect experiences as mental phenomena and structures (Lecours & Bouchard, 1997). It was incorporated into the neurobiological and developmental literature (Frith, 1992; Morton, 1989) in the 1980s and 1990s, where it has been used interchangeably with the more frequently used concept of 'theory of mind' (ToM). Premack and Woodruff (1978) coined the term 'theory of mind' to refer to the capacity to interpret other people's behavior within a mentalistic framework in order to understand how self and others think, feel, perceive, imagine, react, attribute, infer, and so on. The term mentalization as used in this special issue was for the first time introduced by Fonagy (1989).

In focusing on mentalizing as a translational construct, we are by no means suggesting that mentalizing is the "translational frontrunner." Reward function shows much of the same translational promise for a variety of disorders (Sharp, Monterosso, & Montague, 2012); as does emotion dysregulation (Domes, Schulze, & Herpertz, 2009). In this special issue, we evaluate the potential of mentalizing as translational construct with particular relevance to borderline personality disorder (BPD). We focus specifically on mentalizing as a target of psychosocial intervention (because its potential as a biomedical intervention target is premature). We begin appropriately with an article by Sohye Kim (2015) which represents the most basic science contribution in this special issue. This article reviews and discusses the developmental building blocks of mentalizing in the context of early caregiver relationships with specific reference to our understanding of the neuropeptide oxytocin.

Next, Patrick Luyten and Peter Fonagy (2015) take one step further along the translational spectrum by providing a neurobiological understanding of the relationship between stress arousal, attachment, and the activation of different forms of mentalizing of particular relevance to our understanding of BPD. Specifically, mentalizing theory conceptualizes BPD as an imbalance between the neurobiological systems underlying four dimensions of mentalizing: (a) automatic–controlled, (b) internally–externally based, (c) mentalizing with regard to self and others, and (d) cognitive versus affective. In all, this article begins to translate the basic neurobiology of mentalizing into BPD-relevant processes and problems.

This translation continues in the next article in which Fonagy, Luyten, and Bateman (2015) take on perhaps the most complicated of tasks—that is, to explain why mentalizing may be an important treatment target for BPD. In the translational process, especially with regard to psychosocial interventions, this juncture is often neglected, because it requires the translation of observable cognitive, neurobiological, and behavioral endophenotypes into more abstract therapeutic targets without losing touch with the basic process that underpins rather nebulous therapeutic targets. Fonagy, Luyten, and Bateman address this by using the four polarities of mentalizing (as described earlier) to formulate the aim of Mentalization-Based Treatment (MBT) as addressing the unevenness in polarities in the context of moment-to-moment changes in current functioning. Within these four polarities of mentalizing, the authors identify the loci where therapists should work to restore equilibrium to a borderline patient's mentalizing capacity. This section of the article is extremely helpful for any person wanting to understand or use MBT, because it not only links the basic science of mentalizing with its clinical applications, but also provides a clear roadmap for the clinician in terms of therapeutic targets. The second section of the article introduces the basic tenets of MBT as the translational end point of the bench-to-bedside process. MBT is now considered an evidence-based treatment for BPD (Chanen & Kaess, 2012; Choi-Kain & Gunderson, 2008; Paris, 2008; Sharp, 2014). In their introduction of MBT, the authors outline the MBT protocol which informs the clinician how to manage common clinical situations based on several principles. These include collaborative process, problem formulation and session focus, identification of nonmentalizing processes, the mentalizing stance, the not-knowing stance of curiosity, identification of mentalizing poles, trajectory of session, contingency and marking of interventions, and explicit identification of clinician feelings related to the patient's mental processing. As such, the article concludes with a "how to" for MBT and thereby completes the translational process within this special issue.

Mentalizing in BPD: A Translational Model

The three articles included in this special issue provide up-to-date reviews and position on the translational spectrum for mentalizing and BPD. In the remainder of this article, we further evaluate the translational potential of mentalizing against the criteria of translational research discussed earlier.

Translation Not Only Takes Place From Bench-to-Bedside, but Also From Bedside-to-Bench

This principle of translational research captures not only the bidirectionality of the translational research process, but also three other criteria of translational research discussed above, namely that basic "benchwork" may include nonbiological research, that translation research requires seamless transition from typical to atypical samples, and that experimental tasks must be robust and sensitive to produce reliable results in both typical and atypical (clinical)

populations, detect changes in clinical state necessary to assess the effects of treatment, and be feasible and appropriate for use in challenging populations.

In this regard, the field of basic child development saw an explosion of research into the developmental origins of mentalizing capacity in the 1980s and 1990s. Although Premack and Woodruff already coined the term "theory of mind" in the 1970s in the context of their work with chimpanzees, it was not until Wimmer and Perner (1983) introduced the Sally-Ann task that the first experimental probe for mentalizing in humans was provided. This bench work by primatologists spawned the development of several other mentalizing tasks over the last 20 years by basic developmental psychologists (see Vrouva, Target, & Ensink, 2012 for a review), with the newest development in this regard the use of behavioral economics tasks to capture in-the-moment mentalizing (Sharp, 2012). Many of these measures have been used in translational research in borderline patients. For instance, Harari, Shamay-Tsoory, Ravid, and Levkovitz (2010) assessed cognitive and affective ToM in patients with BPD and healthy controls. Using the Faux Pas task (Baron-Cohen, Jolliffe, Mortimore, & Robertson, 1997) alongside an assessment of empathy, they demonstrated impairment in cognitive ToM and empathy, but not affective ToM and empathy in BPD patients. Impairment in ToM was also demonstrated by Preissler, Dziobek, Ritter, Heekeren, and Roepke (2010), who used the Movie Assessment of Social Cognition (MASC; Dziobek et al., 2006), which is a more complex and ecologically valid ToM task developed by basic scientists. They showed that female adults with BPD, compared with healthy controls, showed impaired abilities on items assessing emotions, thoughts, and intentions of movie characters. This same task was used by Sharp, Pane, et al. (2011) in adolescents and demonstrated that mentalizing capacity was compromised, not by a lack of mentalizing per se, but by overinterpretation of the mental states of others (hypermentalizing).

Taking some of these tasks into a neuroimaging context links the cognitive phenotype with its neurobiological correlates. For instance, Mier et al. (2013) used three social cognition tasks developed in basic affective neuroscience to assess basal processing of faces with a neutral expression, recognition of emotions, and attribution of emotional intentions (affective ToM) in BPD patients and healthy controls. BPD patients showed no deficits in social cognition on the behavioral level. However, consistent with Sharp's (2014) hypermentalizing model of BPD, whereas healthy controls showed increasing activation in areas of the mirror neuron system with increasing complexity in the social–cognitive tasks, BPD patients demonstrated hypoactivation in these areas and hyperactivation in the amygdala, which were not modulated by task complexity.

Although research most often occurs in the direction of bench to bedside as described above, there are also examples from within mentalization research where bedside research informed bench work. The most obvious way in which this has occurred is with the mentalization-based clinical formulation of BPD. As mentioned earlier, the construct of mentalization has been in the psychoanalytic literature since the 1970s. Fonagy used it explicitly for the first time in the context of BPD in 1989 as we currently know the construct. This clinical/theoretical study then spawned the empirical research on the mentalizing deficits associated with BPD (see Sharp, 2014, for a full review of this research). Lewin (1952) famously stated that "there is nothing more practical than a good theory" (p. 169). Fonagy provided the field with a good clinical theory to guide an important problem, and we have been testing these ideas since the 1990s.

In sum, regarding the criteria of flexible movement from bench-to-bedside and back again, producing basic science tasks and experimental probes that can flexibly be applied to typical and atypical populations, we see that mentalizing has potential as a translational construct. However, work in this area has just begun and we will return to some of the limitations in this regard in the Conclusion.

Translational Research is Multidisciplinary

As discussed above, translational research only works when it is multidisciplinary. And indeed, mentalizing has been a unifying construct in that it has attracted scholars and researchers from multiple disciplines. With its roots in psychoanalysis (Marty, 1991; Marty & M'Uzan, 1963), other disciplines include molecular genetics (Popolo, McCarthy, & Bhide, 2004; Xia, Wu, & Su, 2012), behavioral genetics (Hughes & Cutting, 1999), biology (Crespi & Badcock, 2008), developmental psychology (Astington, Harris, & Olson, 1988; Astington & Jenkins, 1995; Csibra & Gergely, 2009, 2011; Gergely, 2008; Perner & Lang, 1999; Perner & Wimmer, 1985), neuroscience (Frith & Frith, 2006), developmental cognitive neuroscience (Gweon, Dodell-Feder, Bedny, & Saxe, 2012; Saxe, Whitfield-Gabrieli, Scholz, & Pelphrey, 2009), neuroeconomics (Franzen et al., 2011; King-Casas et al., 2008; Sharp, 2012), psychiatry (Bateman & Fonagy, 2012), clinical psychology (Fonagy, Gergely, Jurist, & Target, 2002), developmental psychopathology (Fonagy & Luyten, 2009; Sharp, Ha, & Fonagy, 2011), and family therapy (Asen & Fonagy, 2012). That mentalizing can be operationalized, tested, and assessed in all these disciplines speaks to its potential as translational construct.

Translational Approaches Often Consider the Contribution of the Brain in Defining and Explaining Psychiatric Disorder

Despite early conceptualizations of BPD as purely the result of environmental influences, it is now widely accepted that BPD has important brain correlates and results from complex interactions and transactions with the environment (Goodman, 2014). This allows for the study of BPD across multiple levels of analyses with mentalizing as a potentially important cognitive and neurobiological endophenotype. In this regard, mentalizing (assessed across different levels of explanation—from cells to circuits to behavior) has the potential to become an important translator. In Figure 1, we have adapted Insel's (2009) reverse translational process that is mostly focused on the development of medication, to depict the translational spectrum for MBT-BPD. We acknowledge that much work is required to complete this translational sequence, especially where biology is concerned. But we provide the figure as a potential blueprint for future work, also acknowledging that biological targets as "translators" in the translational process are just one option open to translational researchers.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

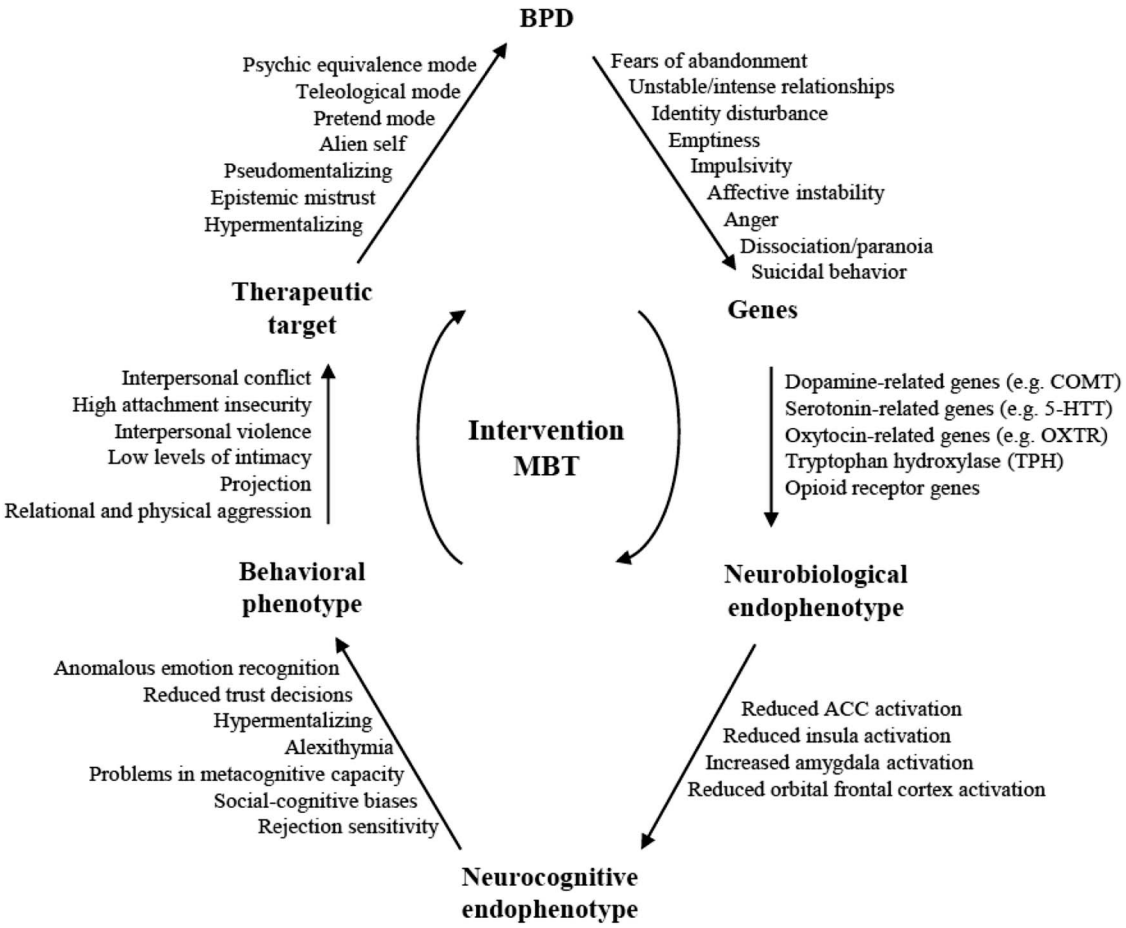

Figure 1. Visual representation of a reverse translational process for MBT-BPD. Technically, to be considered an endophenotype, a construct must be measurable, reproducible, and state-independent, and it should occur at a greater rate in affected probands than in unaffected family members or in the general population and at a greater rate in unaffected family members than in the general population (Balanza-Martinez et al., 2008). Currently, the endophenotypes listed in the figure have not met these standards, but are included here to provide a map for future research. Moreover, the endophenotypes listed here are relevant to mentalizing only (that is, many other endophenotypes may be relevant to other BPD-relevant constructs such as emotion dysregulation). Likewise, the genes described in this figure are genes that research have demonstrated to be related to BPD-relevant mentalizing or theory of mind constructs, and do not represent all that is known about the genetic basis of BPD in general.

Translational Research Works Best When It Is Developmental

Developmental psychopathologists emphasize that normal and abnormal processes are not stable, but change shape across development (Cicchetti & Rogosch, 1996). For instance, one disease process may express itself in the same manner across developmental contexts (i.e., homotypic continuity; Costello, Copeland, & Angold, 2011) or manifest differently across time (i.e., heterotypic continuity; Sroufe & Rutter, 1984). Relatedly, developmental trajectories are viewed as probabilistic, such that multiple developmental pathways and causal influences may lead to the same outcome, termed equifinality. Likewise, the same risk factor or similar pathways can lead to disparate outcomes, termed multifinality. Furthermore, the degree of normality or abnormality of developmental trajectories changes depending upon developmental stage and whether long-term or immediate consequences are being considered, such that pathology and development interact. Therefore, greater elucidation of the developmental influences on phenotypic plasticity is essential if we are to make a serious attempt at preventing psychiatric illness.

Two characteristics of the mentalizing construct are relevant in this regard. First, mentalization is, in its essence, a developmental construct with its roots in the attachment relationship with primary caregivers. Second, because of nearly 20 years of cognitive and neurocognitive developmental research in mentalizing and ToM, a normative developmental map has been charted for this capacity. It is only against the background of this normative developmental trajectory that atypical trajectories can be identified and evaluated to identify biomarkers for early intervention. Identifying early mentalizing gone awry is worthwhile in itself, and placing this in the context of parent–child interactive patterns gives the clinician not one, but two, strategic points of intervention.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Translational Research Must Allow for the Development of Pathways to Personalized Treatment

That mentalizing can be operationalized and therefore assessed in the research and clinical setting as discussed earlier, and because mentalizing has been shown to be sensitive to therapeutic intervention (Rossouw & Fonagy, 2012; Sharp et al., 2013), mentalizing can be seen as a malleable therapeutic target that is not only influenced by effective treatment, but also by other moderating or mediating factors. An immediate candidate variable in this regard is emotion dysregulation, which has been shown to mediate the association between mentalizing and borderline features in adolescence (Sharp et al., 2011). Other mediators may include experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), identity diffusion (Jørgensen, 2006), stress reactivity (Smeets, Dziobek, & Wolf, 2009), and so on. Moderators may include several demographic as well as environmental factors. For instance, it is well-known that women have enhanced social intelligence and mentalizing capacity (Baron-Cohen, 2002) and older children are better mind-readers than younger ones (Happe, 1995). Likewise, a range of environmental and family variables moderate the development of mentalizing capacity (Cutting & Dunn, 1999; Meins et al., 2002; Sharp & Fonagy, 2008), which may include maltreatment (Pears & Fisher, 2005). Together, these factors, in interaction (moderators) or as a precursor or consequence of mentalizing capacity (mediators) will shape pathways to personalized treatment.

Conclusion

The coeditors of this special issue (Carla Sharp and Peter Fonagy) have brought together a set of articles that we hope will provide the basis of a constructive dialogue around the potential of mentalizing as a translational target. In this article, we have attempted to lay the foundation for this dialogue by defining translational research, describing its criteria, and discussing how mentalization fares when evaluated against these criteria. We hope that readers will be stimulated by the research presented in this special issue and that Commentaries will provide the necessary counterpoints and perspectives to further stimulate this work-in-progress. In this regard, we offer a couple of counterpoints and perspectives ourselves.

First, there remains confusion over what is meant by the term "mentalizing" for those not within the mentalizing field or for those newly introduced to the term (Choi-Kain & Gunderson, 2008). Concerns include differentiating the term mentalizing from related terms such as empathy, psychological mindedness, metacognitive capacity, and mindfulness. There is also confusion as to whether the term mentalizing should be used interchangeably with the term theory of mind, and how these two terms really differ. In our own work, we have understood mentalizing to be different from empathy in that the latter is concerned with the *experience* (and not just the understanding) of another person's experience (Eisenberg & Miller, 1987) and the fact that empathy is mostly concerned with the other, whereas mentalizing is concerned with both self and other and the interaction between the two. Psychological mindedness, metacognitive capacity, and mindfulness may enhance or correlate with mentalizing capacity, but none of these constructs requires as per definition the reflection on the minds of others and self per se to understand and predict behavior and foster and maintain relationships. Although these clarifications may help ease some concerns over the mentalizing construct, future studies that include multiple mentalizing tasks tapping into related social–cognitive constructs in the same study are needed to more definitively address concerns of definition.

Another major limitation at this stage is the fact that tasks and measures purporting to assess mentalizing do not always correlate well. This is partly a result of confusion in definition of mentalizing, and partly because mentalizing is indeed a multicomponent construct (see Luyten and Fonagy, 2015). A helpful way to begin thinking about mentalizing capacity may be to think about it in the same way we approach the construct of IQ; the idea being that shared aspects of mentalizing may load on to a large general factor that encapsulates capacity across related constructs, with additional circumscribed factors to capture unique domains of function. This idea is supported by a recent meta-analysis of functional brain imaging studies of theory of mind (Schurz, Radua, Aichorn, Richlan, & Perner, 2014). In this study the authors formed task groups that had comparable stimulus-material, instructions and control conditions. Consistent with the notion of the existence of a "core network" for theory of mind, overlap analyses between task groups showed that the medial prefrontal cortex (mPFC) and bilateral posterior temporal parietal junction (TPJ) showed activation for all theory of mind tasks. However, region-of-interest analyses demonstrated a number of task-related activation differences along with the core-network. For instance, more dorsal/posterior parts of the TPJ were particularly engaged in task that required processing of mental perspectives, whereas ventral/anterior parts of the TPJ were preferentially activated by stimuli that depicted rational action of behavior. The authors concluded that these results suggest that although functional subdivisions within a broad brain region exist, they are graded because each subdivision mediates a particular aspect of a global cognitive function supported by the broad region.

No doubt, the Commentaries on the articles for this special issue will highlight additional challenges that researchers must overcome for the construct of mentalization to meet its full translational potential. Our aim in this special issue was exactly that: to help chart an agenda for future research to build on the empirical basis of mentalization-based work to ultimately inform treatment of individuals suffering from BPD.

References

Aboelela, S. W., Larson, E., Bakken, S., Carrasquillo, O., Formicola, A., Glied, S. A., . . . Gebbie, K. M. (2007). Defining interdisciplinary research: Conclusions from a critical review of the literature. *Health Services Research, 42,* 329–346. http://dx.doi.org/10.1111/j.1475-6773.2006.00621.x

Allen, J. G. (2003). Mentalizing. *Bulletin of the Menninger Clinic, 67,* 91–112. http://dx.doi.org/10.1521/bumc.67.2.91.23440

Asen, E., & Fonagy, P. (2012). Mentalization-based therapeutic interventions for families. *Journal of Family Therapy, 34,* 347–370. http://dx.doi.org/10.1111/j.1467-6427.2011.00552.x

Astington, J. W., Harris, P. L., & Olson, D. R. (Eds.). (1988). *Developing theories of mind*. New York, NY: Cambridge University Press.

Astington, J. W., & Jenkins, J. M. (1995). Theory of mind development and social understanding. *Cognition and Emotion, 9,* 151–165.

Balanzá-Martínez, V., Rubio, C., Selva-Vera, G., Martinez-Aran, A., Sánchez-Moreno, J., Salazar-Fraile, J., . . . Tabarés-Seisdedos, R.

(2008). Neurocognitive endophenotypes (endophenocognitypes) from studies of relatives of bipolar disorder subjects: A systematic review [Review]. *Neuroscience and Biobehavioral Reviews, 32,* 1426–1438. http://dx.doi.org/10.1016/j.neubiorev.2008.05.019

Barlow, D. H., & Allen, L. B. (2004). Scientific basis of psychological treatments for anxiety disorders: Past, present, and future. In J. M. Gorman (Ed.), *Fear and anxiety: The benefits of translational research* (pp. 171–192). Washington, DC: American Psychiatric Press.

Baron-Cohen, S., Leslie, A. M, & Frith, U. (1985). Does the autistic child have a "theory of mind?" *Cognition, 21,* 37–46.

Baron-Cohen, S. (2002). The extreme male brain theory of autism. *Trends in Cognitive Sciences, 6,* 248–254. http://dx.doi.org/10.1016/S1364-6613(02)01904-6

Baron-Cohen, S., Jolliffe, T., Mortimore, C., & Robertson, M. (1997). Another advanced test of theory of mind: Evidence from very high functioning adults with autism or Asperger syndrome. *Child Psychology & Psychiatry & Allied Disciplines, 38,* 813–822. http://dx.doi.org/10.1111/j.1469-7610.1997.tb01599.x

Bateman, A. W., & Fonagy, P. (2012). *Mentalization-based treatment of borderline personality disorder*. New York, NY: Oxford University Press.

Carter, C. S., Barch, D. M., Bullmore, E., Breiling, J., Buchanan, R. W., Butler, P., . . . Wykes, T. (2011). Cognitive neuroscience treatment research to improve cognition in schizophrenia II: Developing imaging biomarkers to enhance treatment development for schizophrenia and related disorders. *Biological Psychiatry, 70,* 7–12.

Chanen, A. M., & Kaess, M. (2012). Developmental pathways to borderline personality disorder. *Current Psychiatry Reports, 14,* 45–53. http://dx.doi.org/10.1007/s11920-011-0242-y

Choi-Kain, L. W., & Gunderson, J. G. (2008). Mentalization: Ontogeny, assessment, and application in the treatment of borderline personality disorder. *The American Journal of Psychiatry, 165,* 1127–1135. http://dx.doi.org/10.1176/appi.ajp.2008.07081360

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology, 8,* 597–600. http://dx.doi.org/10.1017/S0954579400007318

Cicchetti, D., & Toth, S. L. (2006). Building bridges and crossing them: Translational research in developmental psychopathology. *Development and Psychopathology, 18,* 619–622. http://dx.doi.org/10.1017/S0954579406060317

Clinical and Translational Science Awards (CTSA) Consortium. (2011). *NIMH annual summary*. Retrieved February, 28, 2014, from https://www.ctsacentral.org/sites/default/files/documents/6_NIMH_v16.pdf

Cohen, J. D., & Insel, T. R. (2008). Cognitive neuroscience and schizophrenia: Translational research in need of a Trans. *Biological Psychiatry, 64,* 2–3.

Costello, E. J., Copeland, W., & Angold, A. (2011). Trends in psychopathology across the adolescent years: What changes when children become adolescents, and when adolescents become adults? *Journal of Child Psychology and Psychiatry, 52,* 1015–1025. http://dx.doi.org/10.1111/j.1469-7610.2011.02446.x

Crespi, B., & Badcock, C. (2008). The evolutionary social brain: From genes to psychiatric conditions. *Behavioral and Brain Sciences, 31,* 284–320. http://dx.doi.org/10.1017/S0140525X08004457

Csibra, G., & Gergely, G. (2009). Natural pedagogy. *Trends in Cognitive Sciences, 13,* 148–153. http://dx.doi.org/10.1016/j.tics.2009.01.005

Csibra, G., & Gergely, G. (2011). Natural pedagogy as evolutionary adaptation. *Philosophical Transactions of the Royal Society of London Series B, Biological Sciences, 366,* 1149–1157. http://dx.doi.org/10.1098/rstb.2010.0319

Cutting, A. L., & Dunn, J. (1999). Theory of mind, emotion understanding, language, and family background: Individual differences and interrelations. *Child Development, 70,* 853–865. http://dx.doi.org/10.1111/1467-8624.00061

Domes, G., Schulze, L., & Herpertz, S. C. (2009). Emotion recognition in borderline personality disorder-a review of the literature. *Journal of Personality Disorders, 23,* 6–19. http://dx.doi.org/10.1521/pedi.2009.23.1.6

Dziobek, I., Fleck, S., Kalbe, E., Rogers, K., Hassenstab, J., Brand, M., . . . Convit, A. (2006). Introducing MASC: A movie for the assessment of social cognition. *Journal of Autism and Developmental Disorders, 36,* 623–636. http://dx.doi.org/10.1007/s10803-006-0107-0

Eisenberg, N., & Miller, P. A. (1987). The relation of empathy to prosocial and related behaviors. *Psychological Bulletin, 101,* 91–119. http://dx.doi.org/10.1037/0033-2909.101.1.91

Fonagy, P. (1989). On tolerating mental states: Theory of mind in borderline personality. *Bulletin of the Anna Freud Centre, 12,* 91–115.

Fonagy, P., Gergely, G., Jurist, E. L., & Target, M. (2002). *Affect regulation, mentalization, and the development of self*. New York, NY: Other Press.

Fonagy, P., & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology, 21,* 1355–1381. http://dx.doi.org/10.1017/S0954579409990198

Fonagy, P., Luyten, P., & Bateman, A. (2015). Translation: Mentalizing as treatment target in borderline personality disorder. *Personality Disorders: Theory, Research, and Treatment, 6,* 380–392. http://dx.doi.org/10.1037/per0000113

Fonagy, P., Target, M., Cottrell, D., Phillips, J., Kurtz, Z., & Kurtz, A. (2005). *What works for whom? A critical review of treatments for children and adolescents*. New York, NY: Guilford Press.

Fontanarosa, P. B., & DeAngelis, C. D. (2002). Basic science and translational research in JAMA. *Journal of the American Medical Association, 287,* 1728. http://dx.doi.org/10.1001/jama.287.13.1728

Franzen, N., Hagenhoff, M., Baer, N., Schmidt, A., Mier, D., Sammer, G., . . . Lis, S. (2011). Superior 'theory of mind' in borderline personality disorder: An analysis of interaction behavior in a virtual trust game. *Psychiatry Research, 187,* 224–233. http://dx.doi.org/10.1016/j.psychres.2010.11.012

Frith, C. D. (1992). *The cognitive neuropsychology of schizophrenia*. Hillsdale, NJ: Erlbaum.

Frith, C. D., & Frith, U. (2006). The neural basis of mentalizing. *Neuron, 50,* 531–534. http://dx.doi.org/10.1016/j.neuron.2006.05.001

Gergely, G. (2008). Learning about, versus learning from, other minds: Natural pedagogy and the role of ostensive communicative cues in cultural learning in human infants. *International Journal of Psychology, 43,* 528.

Goodman, M. (2014). The neurobiology of adolescent-onset Borderline Personality Disorder. In C. Sharp & J. L. Tackett (Eds.), *Handbook of borderline personality disorder in children and adolescents* (pp. 113–128). New York, NY: Springer. http://dx.doi.org/10.1007/978-1-4939-0591-1_9

Grigorenko, E. L. (2009). What are little boys made of? Snips and snails and puppy dog tails: Etiological bases of conducted disorder and related conduct problems. In M. R. Gunnar & D. C. Cichetti (Eds.), *Minnesota Symposia on Child Psychology: Vol. 35. Meeting the challenge of translational research in child psychology* (pp. 239–272). Hoboken, NJ: Wiley.

Gunnar, M. R., & Cicchetti, D. (2009). Meeting the challenge of translational research in child development. In M. R. Gunnar & D. Cicchetti (Eds.), *Minnesota Symposia on Child Psychology: Vol. 35. Meeting the challenge of translational research in child psychology* (pp. 1–27). Hoboken, NJ: Wiley.

Gweon, H., Dodell-Feder, D., Bedny, M., & Saxe, R. (2012). Theory of mind performance in children correlates with functional specialization of a brain region for thinking about thoughts. *Child Development, 83,* 1853–1868. http://dx.doi.org/10.1111/j.1467-8624.2012.01829.x

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Happé, F. G. (1995). The role of age and verbal ability in the theory of mind task performance of subjects with autism. *Child Development, 66,* 843–855. http://dx.doi.org/10.2307/1131954

Harari, H., Shamay-Tsoory, S. G., Ravid, M., & Levkovitz, Y. (2010). Double dissociation between cognitive and affective empathy in borderline personality disorder. *Psychiatry Research, 175,* 277–279. http://dx.doi.org/10.1016/j.psychres.2009.03.002

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Experimental avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64,* 1152–1168. http://dx.doi.org/10.1037/0022-006X.64.6.1152

Hughes, C., & Cutting, A. L. (1999). Nature, nurture, and individual differences in early understanding of mind. *Psychological Science, 10,* 429–432. http://dx.doi.org/10.1111/1467-9280.00181

Insel, T. R. (2009). Translating scientific opportunity into public health impact: A strategic plan for research on mental illness. *Archives of General Psychiatry, 66,* 128–133. http://dx.doi.org/10.1001/archgenpsychiatry.2008.540

Insel, T. R., & Cuthbert, B. N. (2009). Endophenotypes: Bridging genomic complexity and disorder heterogeneity. *Biological Psychiatry, 66,* 988–989.

Jørgensen, C. R. (2006). Disturbed sense of identity in borderline personality disorder. *Journal of Personality Disorders, 20,* 618–644. http://dx.doi.org/10.1521/pedi.2006.20.6.618

Kessler, R. C., Berglund, P., Borges, G., Nock, M., & Wang, P. S. (2005). Trends in suicide ideation, plans, gestures, and attempts in the United States, 1990–1992 to 2001–2003. *JAMA: Journal of the American Medical Association, 293,* 2487–2495. http://dx.doi.org/10.1001/jama.293.20.2487

Kessler, R. C., Demler, O., Frank, R. G., Olfson, M., Pincus, H. A., Walters, E. E., . . . Zaslavsky, A. M. (2005). Prevalence and treatment of mental disorders, 1990 to 2003. *The New England Journal of Medicine, 352,* 2515–2523. http://dx.doi.org/10.1056/NEJMsa043266

Kim, S. (2015). The mind in the making: Developmental and neurobiological origins of mentalizing. *Personality Disorders: Theory, Research, and Treatment, 6,* 356–365. http://dx.doi.org/10.1037/per0000102

King-Casas, B., Sharp, C., Lomax-Bream, L., Lohrenz, T., Fonagy, P., & Montague, P. R. (2008). The rupture and repair of cooperation in borderline personality disorder. *Science, 321,* 806–810.

Lecours, S., & Bouchard, M. A. (1997). Dimensions of mentalisation: Outlining levels of psychic transformation. *The International Journal of Psychoanalysis, 78,* 855–875.

Lewin, K. (1952). *Field theory in social science: Selected theoretical papers by Kurt Lewin*. London, UK: Tavistock.

Lieberman, J. A., Lebowitz, B., Hsiao, J., Severe, J., Stroup, T. S., McEvoy, J. P., . . . Davis, C. E. (2005). Effectiveness of antipsychotic drugs in patients with chronic schizophrenia: Primary efficacy and safety outcomes of the clinical antipsychotic trials of intervention effectiveness (CATIE) schizophrenia trial. *Neuropsychopharmacology, 30,* S32.

Luyten, P., & Fonagy, P. (2015). The neurobiology of mentalizing. *Personality Disorders: Theory, Research, and Treatment, 6,* 366–379. http://dx.doi.org/10.1037/per0000117

Marty, P. (1991). *Mentalisation et psychosomatique*. Paris, France: Laboratoire Delagrange.

Marty, P., & M'Uzan, D. (1963). La pensée opératoire. *Revue Française de Psychanalyse, 27,* 1345–1356.

Meins, E., Fernyhough, C., Wainwright, R., Das Gupta, M., Fradley, E., & Tuckey, M. (2002). Maternal mind-mindedness and attachment security as predictors of theory of mind understanding. *Child Development, 73,* 1715–1726. http://dx.doi.org/10.1111/1467-8624.00501

Mier, D., Lis, S., Esslinger, C., Sauer, C., Hagenhoff, M., Ulferts, J., . . . Kirsch, P. (2013). Neuronal correlates of social cognition in borderline personality disorder. *Social Cognitive and Affective Neuroscience, 8,* 531–537. http://dx.doi.org/10.1093/scan/nss028

Morton, J. (1989). The origins of autism. *New Scientist, 124,* 44–47.

National Cancer Institute. (2008). *Surveillance epidemiology and end results*. Retrieved February, 27, 2014 from http://seer.cancer.gov/

National Heart, Lung, and Blood Institute. (2007). *Morbidity and mortality: 2007 chartbook on cardiovascular, lung, and blood diseases*. Bethesda, MD: National Heart, Lung, and Blood Institute.

National Institutes of Health. (2014). *Map of CTSA-funded institutions*. Retrieved February, 27 2014, from http://www.ncats.nih.gov/research/cts/ctsa/about/institutions/map.html

Paris, J. (2008). Clinical trials of treatment for personality disorders. *Psychiatry Clinics of North America, 31,* 517–526, viii. http://dx.doi.org/10.1016/j.psc.2008.03.013

Pears, K. C., & Fisher, P. A. (2005). Emotion understanding and theory of mind among maltreated children in foster care: Evidence of deficits. *Development and Psychopathology, 17,* 47–65. http://dx.doi.org/10.1017/S0954579405050030

Perner, J., & Lang, B. (1999). Development of theory of mind and executive control. *Trends in Cognitive Sciences, 3,* 337–344. http://dx.doi.org/10.1016/S1364-6613(99)01362-5

Perner, J., & Wimmer, H. (1985). "John thinks that Mary thinks that . . .": Attribution of second-order beliefs by 5- to 10-year-old children. *Journal of Experimental Child Psychology, 39,* 437–471. http://dx.doi.org/10.1016/0022-0965(85)90051-7

Popolo, M., McCarthy, D. M., & Bhide, P. G. (2004). Influence of dopamine on precursor cell proliferation and differentiation in the embryonic mouse telencephalon. *Developmental Neuroscience, 26,* 229–244. http://dx.doi.org/10.1159/000082140

Preissler, S., Dziobek, I., Ritter, K., Heekeren, H. R., & Roepke, S. (2010). Social cognition in borderline personality disorder: Evidence for disturbed recognition of the emotions, thoughts, and intentions of others. *Frontiers of Behavioral Neuroscience, 4,* 182. http://dx.doi.org/10.3389/fnbeh.2010.00182

Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a 'theory of mind'? *Behavioral and Brain Sciences, 1,* 515–526. http://dx.doi.org/10.1017/S0140525X00076512

Rossouw, T. I., & Fonagy, P. (2012). Mentalization-based treatment for self-harm in adolescents: A randomized controlled trial. *Journal of the American Academy of Child & Adolescent Psychiatry, 51,* 1304–1313. e3. http://dx.doi.org/10.1016/j.jaac.2012.09.018

Saxe, R. R., Whitfield-Gabrieli, S., Scholz, J., & Pelphrey, K. A. (2009). Brain regions for perceiving and reasoning about other people in school-aged children. *Child Development, 80,* 1197–1209. http://dx.doi.org/10.1111/j.1467-8624.2009.01325.x

Schurz, M., Radua, J., Aichhorn, M., Richlan, F., & Perner, J. (2014). Fractionating theory of mind: A meta-analysis of functional brain imaging studies. *Neuroscience and Biobehavioral Reviews, 42,* 9–34. http://dx.doi.org/10.1016/j.neubiorev.2014.01.009

Sharp, C. (2012). The use of neuroeconomic games to examine social decision making in child and adolescent externalizing disorder. *Current Directions in Psychological Science, 21,* 183–188. http://dx.doi.org/10.1177/0963721412444726

Sharp, C. (2014). The social-cognitive basis of borderline personality disorder: A theory of hypermentalizing. In C. Sharp & J. Tackett (Eds.), *The handbook of borderline personality disorder in children and adolescents* (pp. 211–225). New York, NY: Springer. http://dx.doi.org/10.1007/978-1-4939-0591-1_15

Sharp, C., & Fonagy, P. (2008). The parent's capacity to treat the child as a psychological agent: Constructs, measures and implications for developmental psychopathology. *Social Development, 17,* 737–754. http://dx.doi.org/10.1111/j.1467-9507.2007.00457.x

Sharp, C., Ha, C., Carbone, C., Kim, S., Perry, K., Williams, L., & Fonagy, P. (2013). Hypermentalizing in adolescent inpatients: Treatment effects and association with borderline traits. *Journal of Personality Disorders, 27,* 3–18. http://dx.doi.org/10.1521/pedi.2013.27.1.3

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Sharp, C., Ha, C., & Fonagy, P. (2011). Get them before they get you: Trust, trustworthiness, and social cognition in boys with and without externalizing behavior problems. *Development and Psychopathology, 23,* 647–658. http://dx.doi.org/10.1017/S0954579410000003

Sharp, C., Monterosso, J., & Montague, P. R. (2012). Neuroeconomics: A bridge for translational research. *Biological Psychiatry, 72,* 87–92. http://dx.doi.org/10.1016/j.biopsych.2012.02.029

Sharp, C., Pane, H., Ha, C., Venta, A., Patel, A. B., Sturek, J., & Fonagy, P. (2011). Theory of mind and emotion regulation difficulties in adolescents with borderline traits. *Journal of the American Academy of Child & Adolescent Psychiatry, 50,* 563–573. http://dx.doi.org/10.1016/j.jaac.2011.01.017

Smeets, T., Dziobek, I., & Wolf, O. T. (2009). Social cognition under stress: Differential effects of stress-induced cortisol elevations in healthy young men and women. *Hormones and Behavior, 55,* 507–513.

Sroufe, L. A., & Rutter, M. (1984). The domain of developmental psychopathology. *Child Development, 55,* 17–29. http://dx.doi.org/10.2307/1129832

Sung, N. S., Crowley, W. F., Jr., Genel, M., Salber, P., Sandy, L., Sherwood, L. M., . . . Rimoin, D. (2003). Central challenges facing the national clinical research enterprise. *Journal of the American Medical Association, 289,* 1278–1287. http://dx.doi.org/10.1001/jama.289.10.1278

Tashiro, T., & Mortensen, L. (2006). Translational research: How social psychology can improve psychotherapy. *American Psychologist, 61,* 959–966. http://dx.doi.org/10.1037/0003-066X.61.9.959

Thase, M. E. (2007). STEP-BD and bipolar depression: What have we learned? *Current Psychiatry Reports, 9,* 497–503. http://dx.doi.org/10.1007/s11920-007-0068-9

Vrouva, I., Target, M., & Ensink, K. (2012). Mentalizing problems in children and adolescents. In N. Midgley & I. Vrouva (Eds.), *Minding the child* (pp. 35–53). London, UK: Routledge.

Warden, D., Rush, A. J., Trivedi, M. H., Fava, M., & Wisniewski, S. R. (2007). The STAR*D Project results: A comprehensive review of findings. *Current Psychiatry Reports, 9,* 449–459. http://dx.doi.org/10.1007/s11920-007-0061-3

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13,* 103–128. http://dx.doi.org/10.1016/0010-0277(83)90004-5

Woolf, S. H. (2008). The meaning of translational research and why it matters. *Journal of the American Medical Association, 299,* 211–213. http://dx.doi.org/10.1001/jama.2007.26

Xia, H., Wu, N., & Su, Y. (2012). Investigating the genetic basis of theory of mind (ToM): The role of catechol-O-methyltransferase (COMT) gene polymorphisms. *PLoS ONE, 7,* e49768. http://dx.doi.org/10.1371/journal.pone.0049768

Yoshida, H., & Smith, L. B. (2008). What's in view for toddlers? Using a head camera to study visual experience. *Infancy, 13,* 229–248. http://dx.doi.org/10.1080/15250000802004437

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

New Editors Appointed

The Publications and Communications Board of the American Psychological Association announces the appointment of 6 new editors. As of January 1, 2016, manuscripts should be directed as follows:

- *American Psychologist* (www.apa.org/pubs/journals/amp/) **Anne E. Kazak, PhD, ABPP,** Nemours Children's Health Network, A.I. du Pont Hospital for Children
- *Developmental Psychology* (http://www.apa.org/pubs/journals/dev/) **Eric F. Dubow, PhD,** Bowling Green State University
- *International Perspectives in Psychology: Research Practice, Consultation* (www.apa.org/pubs/journals/ipp/) **Stuart Carr, PhD,** Massey University
- *Journal of Consulting and Clinical Psychology* (www.apa.org/pubs/journals/ccp/) **Joanne Davila, PhD,** Stony Brook University
- *School Psychology Quarterly* (www.apa.org/pubs/journals/spq/) **Richard Gilman, PhD,** Cincinnati Children's Hospital Medical Center
- *Sport, Exercise and Performance Psychology* (www.apa.org/pubs/journals/spy/) **Maria Kavussanu, PhD,** University of Birmingham, UK

Electronic manuscript submission: As of January 1, 2016, manuscripts should be submitted electronically to the new editors via the journal's Manuscript Submission Portal (see the website listed above with each journal title).

Current editors Norman Anderson, PhD, Jacquelynne Eccles, PhD, Judith Gibbons, PhD, Arthur M. Nezu, PhD, Shane R. Jimerson, PhD, and Jeffrey J. Martin, PhD will receive and consider new manuscripts through December 31, 2015.