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Special Issue Article

The Future of Developmental Psychopathology: Honoring the Contributions of Dante Cicchetti

Taking stock to move forward: Where the field of developmental psychopathology might be heading

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Abstract

In this paper, dedicated to Dante Cicchetti's contributions and enduring influence, we explore the prospective directions of developmental psychopathology. Our focus centers on key domains where Cicchetti's significant achievements have continually shaped our evolving thinking about psychological development. These domains include (a) the concepts of equifinality and multifinality, along with the challenges in predicting developmental trajectories, (b) the imperative to integrate wider sociocultural viewpoints into developmental psychopathology frameworks, (c) the interplay of genetic and environmental influences in developmental courses, (d) the significance of mental state language, and (e) the progress, or its absence, in the development of prevention and intervention tactics for children, adolescents, and their caregivers. While many of our forecasts regarding the future of developmental psychopathology may not materialize, we maintain optimistic that the essential ideas presented will influence the research agenda in this field and contribute to its growth over the next fifty years.

Keywords: Attachment; culture; developmental psychopathology; mentalizing, epistemic trust

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Introduction

When the musician Bob Dylan was awarded a Nobel Prize in Literature in 2016, another legendary musician, Leonard Cohen, remarked that awarding Dylan the Nobel Prize in Literature was akin to "pinning a medal on Mount Everest for being the highest mountain." In a similar vein, dedicating a special issue of *Development and Psychopathology* to the work and legacy of Dante Cicchetti is highly fitting considering his profound impact on the field. Dante's contributions to the field of developmental psychopathology are extensive and varied. They range from his ground-breaking work on equifinality and multifinality in developmental paths (Cicchetti & Rogosch, 1996), his trailblazing studies on the impacts of adversity, especially child maltreatment (Cicchetti & Toth, 2005; Russotti et al., 2021), the significance of attachment (Doyle & Cicchetti, 2017; Raby et al., 2012) and resilience (Denckla et al., 2020), to the crucial role of peer and romantic relationships in development (Handley et al., 2019), and his highly innovative work on intervention and prevention (Cicchetti & Gunnar, 2008; DeGarmo et al., 2023; Guild et al., 2021). His contributions cover the entire spectrum of developmental psychopathology. The blend of his extensive theoretical and conceptual interests, along with the robust interdisciplinary nature of his research, is likely the most distinctive aspect of his approach to developmental psychopathology. Dante's long tenure as the editor of *Development and Psychopathology*, the leading journal in the field, and his role as editor of multiple versions of the authoritative handbook *Developmental Psychopathology*, have solidified his role as leader of the field.

We are profoundly privileged to have been invited to contribute to this special issue dedicated to Dante's contributions and exploring the future of developmental psychopathology. Writing this paper has been an equally humbling experience, not only because it made us once more conscious of the immense scope of his contributions to the field but also because it reminded us of how difficult it is to predict the future. Indeed, it is very well known that humans are generally terrible at predicting the future, and we consider it extremely unlikely that we will be the exception to that rule. Having been involved in longitudinal research for several decades now ourselves, we know all too well how difficult it is to predict future developmental trajectories of people, let alone that we would be able to predict the developmental trajectory of an entire research field. In writing this paper, we were therefore reminded of the story of Robert Metcalfe, a professor at the University of Texas at Austin, who has been involved in the development of the internet from the 1970s onward. In 1995, Metcalfe famously argued in a column that the internet would suffer a "catastrophic collapse" in the following year, and he allegedly promised to eat his words if it did not. Two years later, during a keynote speech, he pulled out a printed copy of his column, put it in a blender with some water, and drank the blended

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mixture. Conscious of the risk that we will need to eat the present paper at some point in the future, we therefore find ourselves in complete agreement with Winston Churchill, who once noted that predictions are extremely difficult, especially when they concern the future. However, we hope that at least some of our predictions will materialize and, consistent with our dedication to empirical science, we look forward to seeing which ones are borne out and which ones turn out to be mere wishful thinking.

Our analysis of developmental psychopathology's future is structured around five critical areas where Dante has been exceptionally influential. These areas are: (a) the concepts of equifinality and multifinality, and the complexities of predicting developmental paths, (b) the urgency of incorporating broader sociocultural perspectives into developmental psychopathology models, (c) the dynamic interaction between genetic factors and environmental conditions in shaping developmental trajectories, (d) the importance of mental state language, and (e) the progress, or lack thereof, in advancing prevention and intervention methods for children, teenagers, and their caregivers.

Multifinality, equifinality, and the elusive complexity of developmental trajectories revisited

Research over the past decades has clearly demonstrated the intricate interplay of psychological, biological, and sociocultural factors in psychological developmental processes in both typical and atypical development (Handley et al., 2019; Jolicoeur-Martineau et al., 2020; Kochanska & An, in press; Masten et al., 2021; McCrory et al., 2022; Pollak, 2015; Russotti et al., 2021; Verhage et al., 2018; Zeegers et al., 2017). In our opinion, two major sets of findings have emerged in this context, which have considerably changed our understanding of the nature of psychological development. The first set of findings concerns the major role of early adversity in determining both physical and mental health (2021b; Hogg et al., 2023; Madigan et al., 2023; McCrory et al., 2012, 2022; Pollak, 2015, Smith & Pollak, 2021a). The second relates to findings concerning the ubiquitous nature of resilience, and thus plasticity and change, particularly in critical periods in psychological development (Bonanno & Diminich, 2013; Denckla et al., 2020; Masten et al., 2021). In both of these areas, Cicchetti and his colleagues have made key contributions (Cicchetti & Toth, 2005; Denckla et al., 2020; Russotti et al., 2021).

Early developmental theorists cautioned against overly narrow and simplistic explanations of psychological development. For instance, Anna Freud (1981) emphasized the importance of simultaneously considering different developmental lines and their intricate interactions; Erik Erikson (1959) highlighted the interaction among psychological and cultural factors in his epigenetic theory of human development across the lifespan; and Bronfenbrenner's (Bronfenbrenner, 1977; Bronfenbrenner & Morris, 2007) bio-ecological approach focused on complex interactions among psychosocial and biological factors in psychological development. Consistent with the views of these pioneers, it has become increasingly clear that predicting developmental outcomes is difficult (Smith & Pollak, 2021a) not least because of the role of chance events and stochastic processes in explaining psychological development (Fraley & Roberts, 2005). This confronts us with a problem that was described more than a century ago by Sigmund Freud when he discussed the issue of predicting later development from childhood to later adulthood:

> "So long as we trace the development from its final outcome backwards, the chain of events appears continuous, and insight which is completely satisfactory or even exhaustive. But if we proceed the reverse way (. . .) then we no longer get the impression of an inevitable sequence of events which could not have been otherwise determined. We notice at once that there might have been another result, and that we might have been just as well able to understand and explain the latter. The synthesis is thus not so satisfactory as the analysis; in other words, from a knowledge of the premises we could not have foretold the nature of the result. (. . .)." (Freud, 1920, pp. 167–168)

Freud's views foreshowed Dante Cicchetti and Fred Rogosch's (1996) notions of equifinality and multifinality which revolutionized our thinking concerning psychological development. Equifinality captures how a single developmental outcome may be influenced by multiple risk or protective factors, while multifinality implies that one particular risk or protective factor may result in multiple outcomes. Although both notions have been massively helpful in developmental psychopathology, and have greatly fostered a move toward more transdiagnostic and transtheoretical approaches in developmental psychopathology and beyond (discussed in more detail below), we are now – perhaps more than ever – confronted with the elusive problem of prediction in developmental psychopathology. This is the case particularly because, with some exceptions, most associations between developmental factors and later outcomes are typically at best small to modest (Fearon et al., 2010; Groh et al., 2012; Luyten et al., 2021; Zeegers et al., 2017). This issue poses challenges not just in research but also in the realms of prevention and intervention. For example, it is crucial to discern between the typical developmental upheaval characteristic of adolescence and the signs of emerging personality disorder (Fonagy, Speranza, et al., 2015; Hutsebaut et al., 2020). Similarly, there is a question about whether we should persist in focusing on a limited set of presumed specific vulnerability factors in psychosocial interventions designed for particular psychological disorders. This approach may be less effective if these specific factors account for only a small portion of the variance in developmental outcomes, especially considering the substantial evidence for the role of broader transdiagnostic factors involved in equifinality and multifinality (Leichsenring et al., 2022; Norton & Paulus, 2016; Weisz et al., 2019).

How we can we improve our ability to predict developmental outcomes in the future and use this knowledge to improve our intervention strategies? One potential avenue seems to be provided by recently emerging hierarchical models of psychopathology and personality development. Research on a general psychopathology factor and a bifactor model of psychopathology is likely to be greatly helpful in elucidating both equifinality and multifinality in developmental outcomes in the future. The bifactor model basically argues that a single general psychopathology factor or "p" factor, akin to a general ("g") factor in research on intelligence, explains the covariance between higher-order factors of psychopathology such as internalizing, externalizing, and thought disorder features and specific symptom domains (Caspi et al., 2014; Caspi & Moffitt, 2018; Choate et al., 2023; Lahey et al., 2021; Smith et al., 2020). The p factor is thus assumed to represent a general predisposition to mental disorder; it follows from this that the p factor should correlate with known risk factors for psychopathology. Consistent with these assumptions, higher p factor scores are associated with known vulnerability factors for psychopathology, including early adversity, markers of socioeconomic disadvantage, and disruptions in brain function and brain structure (Caspi & Moffitt, 2018; Patalay et al., 2015). Moreover, the p factor overlaps with genomic and neural "p factors", that is, genetic factors and impairments in neural functioning that are implicated in a wide variety of psychological disorders and problems (Sprooten et al., 2022). Crucially, research findings

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suggest that the *p* factor explains more of the variance in developmental outcomes than specific vulnerability factors do (Caspi & Moffitt, 2018; Patalay et al., 2015), and there is emerging research that a general psychopathology factor also predicts treatment response in psychosocial interventions over and above lower-bandwidth factors (Constantinou et al., 2019; Fiorini et al., 2022). Furthermore, the *p* factor is also likely to be involved in active person–environment transactions, in that individuals with high p factor levels may unconsciously create, in part, their own stressful environment (Smith et al., 2020).

The relevance of a bifactor model of psychopathology for developmental psychopathology is further increased if we consider the p factor as indicative of problems with the capacity for social learning and epistemic trust in particular (Fonagy et al., 2022; Luyten et al., 2021). Epistemic trust refers to an evolutionarily prewired capacity to identify knowledge that is conveyed by others as significant, personally relevant, and generalizable to other contexts. It is thought to facilitate resilience through a health-generating (salutogenic) process facilitated by social learning.

Evolutionary research suggests that the development of epistemic trust is a species-specific ability that allows the kinds of sophisticated and complex forms of communication and collaboration that are typical of humans (Tomasello, 2010), particularly in combination with another species-specific ability, namely, the capacity to mentalize. From a developmental perspective, the combination of the emerging capacity for mentalizing and epistemic trust seems to open in children what we have termed an "epistemic superhighway" allowing the developing child to take in social information conveyed by informants who are considered by the child to be trustworthy.

The development of both mentalizing and epistemic trust is complex, in that epistemic vigilance is the default mode of functioning in children as, from age 3 onward, they begin to develop the capacity for selective trust in knowledge conveyed by others (Coan & Sbarra, 2015; Fonagy & Luyten, 2018; Fonagy et al., 2017; Gergely, 2013; Konner, 2010; Sperber et al., 2010; Tomasello, 2010). The early caregiving environment and, later on, the sociocultural environment more generally, appears to play a crucial role in overcoming epistemic vigilance in children and in allowing them to develop an adaptive epistemic stance toward cultural knowledge (Allen, 2021; Fonagy et al., 2017). In this regard, it is as yet not clear what impact the current epistemic crisis, in which children and young people in particular are being subjected to a torrent of socio-digital information whose trustworthiness is often unclear, will have on children's and young people's psychological development.

Again, hierarchical models of psychopathology and personality (Bleidorn et al., 2020; Hopwood et al., 2022; Widiger et al., 2018) provide a potentially productive approach in this context, as they specify both general personality-related factors (such as a general p factor) and more specific personality features that might be involved in person–environment correlations and interactions, leading to more fine-grained predictions about developmental outcomes. For instance, employing Waddington's (1957) metaphor of an epigenetic landscape, the personality or temperamental dimensions identified in multivariate studies could steer children in certain directions within the epigenetic landscape, affecting their capacity for epistemic trust (Luyten & Fonagy, 2022). Specific genetic predispositions, as manifested in low levels of temperamental factors such as effortful control and executive functioning, might negatively influence the development of epistemic trust. High levels of neuroticism, a temperamental factor that also has a high genetic component, might impact the development of secure attachment relationships in infants and thus their ability to trust others as sources of social information and thus hinder salutogenic processes. Similarly, the presence or absence of responsive caregivers or mentors, influenced by active relationship-recruiting capacities and/or chance, could alter individuals' epistemic stance – and thus their capacity for social learning – over time. Broader aspects of the sociocultural climate in which children are raised, like the presence or absence of social capital (i.e., shared values or resources that allow individuals to work together in a group) within a given (sub)cultural context, may partly shape a developing child's perception of others (Smith & Pollak, 2021b; Xu et al., 2023) and, ultimately, their capacity for epistemic trust. These perspectives align with contemporary views of personality and personality pathology, suggesting that personality fundamentally serves as a subjective intrapsychic system for fulfilling adult life tasks, highlighting the role of individuals as agentic actors in interpreting and managing the self. From this perspective, specific personality traits may influence the expression and manifestations of personality and personality pathology (Sharp & Wall, 2021).

Artificial Intelligence (AI) is extremely likely to facilitate research in this area. For example, epistemic trust, epistemic mistrust, and epistemic credulity (Campbell et al., 2021) could be viewed as variables within a Bayesian framework, with the p factor reflecting a general impairment in the capacity to revise hypotheses (i.e., beliefs about the world, and especially about others) in the light of current experience, resulting in an apparent rigidity manifested as impairments in the ability for (social) learning. Hence, internal working models of the self and others, as traditionally conceived within many developmental psychopathology approaches, may contain not only an expectancy parameter but also an expected outcome and learning parameter from this perspective. More specific personality traits, such as neuroticism, openness to experience, and agreeableness, could enhance or inhibit the updating of social information, much like certain caregiving practices or broader sociocultural environments might. With the growing accessibility and capabilities of AI and computational psychiatry methods more broadly, the future is likely to witness increasingly sophisticated modeling of developmental trajectories along these suggested lines.

Incorporating communities and culture in developmental psychopathology approaches

Developmental psychopathology approaches have become increasingly more contextual in the past few decades. This has also come with an increasing realization that, historically, most research in psychology has been based on individuals in "WEIRD" (Western, Educated, Industrialized, Rich, and Democratic) countries, who constitute only slightly more than 10% of the global population (Henrich, 2020). Likewise, less than 10% of studies investigating gene–environment interactions are based on non-Western samples (Leighton et al., 2017). Cicchetti has in this context consistently emphasized the importance of the broader social environment in child development (Beeghly & Cicchetti, 1994; Cicchetti & Toth, 2005).

Our own perspectives on normal and disrupted development have similarly evolved over the past decade. Initially, we placed significant emphasis on the role of dyadic attachment processes and the development of mentalizing abilities within close attachment relationships as key factors in explaining developmental paths. However, our focus has since expanded to a broader, evolutionarily-informed, social-communicative approach. This

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more comprehensive perspective includes the influence of family, peers, and sociocultural factors at large in the development of a psychological self (Fonagy et al., 2022; Luyten et al., 2020).

Two strands of research have contributed to this shift in our thinking. First, based on evolutionary-based research, in particular the work of Tomasello and colleagues (O'Madagain & Tomasello, 2019; Tomasello, 2020a, 2020b), we have increasingly come to realize that the role of impairments in the capacity for mentalizing far exceeds the importance we ascribed to them in understanding psychopathology. There is increasing evidence that mentalizing is a central human capacity, rooted in joint attention and shared intentionality, that plays a pivotal role in both normal and disrupted psychological development, in that it enables the complex forms of communication and collaboration, and thus (social) learning, that are typical of humans. Second, the work of Gergely and Csibra on their theory of natural pedagogy (Csibra & Gergely, 2009; Gergely, 2013), Konner's views of childhood as reflecting a process of enculturation made possible by the evolution of a cultural acquisition device (Konner, 2010), Tomasello's cultural intelligence hypothesis (Tomasello, 2010), social baseline theory (Coan & Sbarra, 2015), and Sperber and colleagues' groundbreaking work on epistemic vigilance in humans (Sperber et al., 2010) drew our attention to the potential role of epistemic trust in explaining the fast transmission of social information that is typical of most human learning processes. We now assume that epistemic trust is likely to play a key role in resilience through a salutogenic process that involves deriving benefit from relevant information accessible through the social environment (Campbell et al., 2021; Fonagy et al., 2022).

This led to a substantial shift in our understanding of the nature of several key developmental processes. Research on attachment and personality provides a good illustration of this change in our views (Luyten et al., 2021). Although we still believe that research findings are consistent with the assumption that a secure attachment context fosters a broad array of psychological processes, ranging from cognitive development to the acquirement of socioemotional skills and capacities, we have also come to realize that the importance of (early) attachment relationships for children partly lies in learning to recognize who is trustworthy, authoritative, and knowledgeable (Corriveau et al., 2009; Fonagy et al., 2022). Furthermore, we now consider secure attachment an important, but not the only – and in some cultural contexts not even necessary – context for social communication to promote the most effective way to function in a given sociocultural environment. Broader social contextual factors (e.g., peers, neighborhood climate, the social capital in a given cultural environment, and, last but not least in the digital era, social media) are likely to influence the development of attachment and epistemic trust over time. From this perspective, we no longer consider attachment or personality styles as something that reside within the individual, but as something that defines the relationship an individual has with others and their social contexts more generally. Put otherwise, attachment and personality styles are seen as communicative strategies underpinning social learning to ensure adaptation to ever-changing social situations, however "maladaptive" or "rigid" this adaptation strategy may seem. Yet, the rigidity or maladaptiveness we now posit is in the eye of the beholder. For instance, the often pervasive mistrust that is typical of individuals with high levels of dismissive and disorganized attachment (Campbell et al., 2021) should be considered a reasonable and understandable attempt to adapt to the unavailability and/or untrustworthiness of others, often as part of a "risky environment" (Cicchetti & Toth, 2005). This view opens up interesting perspectives for intervention, as the "rigidity" or "hard-to-reach" nature of the individual is not situated primarily in the individual but in the relationship between the individual and their context, and thus may be apparent only as long as the mechanisms responsible for the obstruction to epistemic trust are in place.

Further, as noted, dyadic attachment processes and emotional sensitivity are unlikely to be the exclusive route for generating epistemic trust and salutogenesis. For instance, alloparenting, which involves caregiving by multiple caregivers without specific division of tasks based on location or time, is widely prevalent in numerous non-Western countries (Dagan & Sagi-Schwartz, 2021; Hawks & Meehan, 2014; Hrdy, 2016). This practice may even be an adaptation to challenging environments, reflecting a response to adversity (Martin et al., 2020). Caregiver–child interactions involving play and conversation tend to be less frequent in many non-Western cultures, and often do not conform to the "interactional script" commonly observed in Western countries. Viewing the child as a "social apprentice," it is crucial for the child to experience moments of recognition and a sense of joint intentionality that provide clear guidance on how to behave within their community. A focus on attachment, emotions, and psychological states typifies a Western "script" in this context, but there are numerous other possible scripts (Mesman et al., 2016, 2018). The significant benefit of a secure attachment relationship, when viewed in the context of groups rather than individuals, is that it facilitates the child's orientation toward cultural learning opportunities from their environment (Fonagy et al., 2022).

Finally, there may be important cultural differences in terms of which patterns of behavior are considered to reflect normal personality variations and at various levels of the p factor. For example, there are important cultural differences in attitudes toward more introvert, schizoid personality features, which seem to be valued more in many non-Western countries than in many Western cultures. At higher levels of p factor, psychotic thoughts and beliefs may be considered to be less pathological in some cultures than in others (Paniagua, 2000).

The interplay of genes and environment

Developmental psychopathology research has greatly expanded our knowledge of key neurobiological systems, such as those involved in stress, reward, and social cognition, and their role in psychological development. Similarly, the insights from both behavioral and molecular genetic studies have significantly altered our understanding of the role of genetic factors in developmental processes. This is particularly true since the advent of research on gene–environment correlations, interactions, and epigenetics. In this field, Cicchetti and colleagues have contributed several seminal studies (Handley et al., 2023; Raby et al., 2012).

However, a persistent issue has been the difficulty in replicating findings, especially in the realms of gene–environment correlations, interactions, and epigenetics (Bleys et al., 2018; Golds et al., 2020; Leighton et al., 2017; Martins et al., 2022; Picardi et al., 2020; Smeeth et al., 2021). This challenge may be partly due to the identification of a general genetic factor involved in many developmental outcomes throughout the lifespan, leading to a lack of specificity in genetic factors in psychological development. This raises complex questions about equifinality and multifinality. Moreover, although the heritability of many developmental

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constructs appears substantial, in the domain of gene–environment interaction, epigenetics, and genome-wide association studies, typically only small effect sizes have been observed. Most studies have also relied on post-hoc analyses of existing data sets. Consequently, there is a pressing need for preregistered, large-scale, prospective studies using more diverse samples. Much current research may rely on what could eventually be considered "shallow" phenotyping, based on a limited set of developmental factors and a variable-centered approach. Therefore, "deep phenotyping" or "deep ecophenotyping," which adopts a person-centered perspective and develops phenotypes or ecophenotypes based on individual characteristics across various domains (e.g., family, friendship and romantic relationships, academic achievement, community engagement), may be a more effective approach in developmental genetics. Furthermore, advancements in AI and experimental psychopathology are increasingly enabling the development of more sophisticated typologies of individuals, which could have significant implications for psychosocial interventions (Schiele et al., 2020).

Mentalizing, mind-mindedness, and mental-state language

Thirty years ago, Beeghly and Cicchetti (1994) demonstrated that toddlers who experienced maltreatment and had insecure attachment exhibited the most compromised internal-state lexicon compared to other children. Cicchetti and colleagues have always maintained that psychological development follows a series of qualitative reorganizations within and between biological and psychological systems, involving differentiation and subsequent hierarchical integration of psychological capacities (Cicchetti & Toth, 2005; Doyle & Cicchetti, 2017). A child's own ability for mentalizing and epistemic trust, combined with access to a mentalizing environment, is likely to encourage this reorganization. In a similar vein, Cicchetti, alongside various colleagues, developed and validated a narrative coding system to evaluate the effective resolution of trauma. In longitudinal studies, these researchers discovered that resolving maternal trauma had a protective-enhancing impact on maternal sensitivity (Swerbenski et al., 2023).

These findings align with a growing body of research indicating that parental reflective functioning, and specifically caregivers' ability to reflect on their own traumatic experiences, plays a protective role in the dynamics between parental trauma and child outcomes (Berthelot et al., 2022; Borelli et al., 2019; Ensink et al., 2017).

Various lines of research have substantiated the significance of parental mentalizing or reflective functioning – a caregiver's ability to reflect on their own internal mental experiences as well as those of their child – in forecasting developmental outcomes (Luyten et al., 2017; Sharp & Fonagy, 2008; Slade, 2005; Zeegers et al., 2017). Findings from diverse fields, each with unique emphases and assessment methods, converge on this point. Meins (2013) and colleagues' research has focused on the capacity for parental mind-mindedness, while Oppenheim et al. (2001) proposed the construct of parental insightfulness, and Slade (2005) coined the notion of parental reflective functioning. Cicchetti and colleagues' studies in this context focused on the role of mental-state language or internal-state lexicon (Beeghly & Cicchetti, 1994; Brown et al., 2023).

Parental mentalizing represents a relationship-specific manifestation of a more general capacity for mentalizing. It is thought to foster the development of secure attachment, the child's own capacity for reflective functioning, and, as noted, a climate conducive to the development of epistemic trust, adaptive emotion regulation, and positive interpersonal functioning. Although parenting practices may vary across cultures, their essential role in the development of mentalizing seems to be a universal phenomenon. A unique human trait appears to be our tendency to create narratives or stories about our intentionality or mental state language. The belief that another understands us or shares our narrative, or at least that we are aware of, is likely to lead to the establishment of the we-mode, which facilitates learning from others. The crucial factor is the recognition of oneself in another. Of course, the self as imagined may be significantly altered by the desire to identify, the propensity for mimicry, the innate tendency for synchrony, and might not initially be an accurate representation. Nonetheless, if the narrated imagined self aligns with the image of the self in the mind of the other, an identification or match occurs, enabling social learning and the merging of minds which is manifested in synchrony, a type of co-regulation between infants and their caregivers, through which infants learn emotion management strategies from interactions with caregivers (Endevelt-Shapira & Feldman, 2023; Feldman, 2017). Taken together, these findings further support the emphasis on the agentive self in recent views on personality and personality development (Sharp & Wall, 2021) and thus provide promising avenues for further research concerning the role of the closely associated human capacities for meaning-making, agency, and social learning in psychological development.

Research on large language models, together with another newly emerging field, that of developmental robotics (Cangelosi & Schlesinger, 2018), may be able to help us better understand the role of (parental) mentalizing and mental-state language more generally in creating the feeling of being understood and the feelings of competency and agency this seems to engender. At the same time, developmental psychopathology may also be helpful in improving current large language models by examining their underlying assumptions (Frank, 2023).

The need to improve prevention and intervention strategies

Over the past decades, there has been a significant increase in the development and empirical assessment of prevention and intervention strategies for psychological disorders and issues in children and young people. However, similar to the situation in adults (Cuijpers, 2019; Leichsenring et al., 2022), there remains considerable room to enhance these strategies for children and young people. The finding that the effectiveness of psychological interventions for children and young people has on average not improved despite the past five decades of research is particularly concerning (Weisz et al., 2017, 2019). Additionally, the implementation of evidence-based intervention strategies in routine clinical care is significantly behind scientific advancements, and many children and young people, along with their caregivers, especially those in socioeconomically challenging situations, have limited or no access to effective psychological care (Fonagy & Luyten, 2021; Kazdin & Blase, 2011; Kazdin, 2011; Weisz et al., 2017).

Looking ahead, there is likely to be a shift from specific school-based interventions toward more comprehensive and integrative mechanism-based interventions. In a recent extensive study

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involving 348 treatment-control comparisons from 263 randomized studies in young people, for example, the impact of five empirically supported principles of change was examined. The principles are simple: reducing arousal, make desirable behavior rewarding, changing distorted cognitions, skill building in problem solving, and encouraging activities that counter unhelpful behavior. The results indicated that treatments integrating all five of these principles had effects approximately twice as large as those based on fewer principles (Fitzpatrick et al., 2022). These findings align with research suggesting that modular, transdiagnostic interventions could be more effective than disorder-specific approaches (Evans et al., 2020).

Improving social support, and increasing the ability of children, young people and their families to benefit from their social environment in particular, may be a final common pathway to positive mental health, as well as a result of processes that enhance aspects of mental health, such as self-esteem and relationship-recruiting capacities. Those who endure prolonged social support deficits and loneliness often develop epistemic mistrust and inappropriate epistemic credulity, which, instead of fostering social engagement, trigger fear-based responses to situations, leading to a further breakdown of trust in relationships and increased isolation (Cacioppo et al., 2014; Cacioppo, Cacioppo et all., 2015; Cacioppo, Grippo, et al., 2015; Smith & Pollak, 2021b). A meta-analysis by Skeen and colleagues (Skeen et al., 2019) of the active components of universal interventions to improve adolescent mental health, identified the development of adolescents' social skills to support improved interpersonal relationships as crucial in enhancing their mental health. These findings align with our view of the role of social support. We believe this process is bidirectional: providing skills to engage in social relationships also increases the capacity for mentalizing and discerning personally relevant social communication (i.e., epistemic trust). In several studies, interventions aimed at rebuilding such relationships, transforming them from those based on power imbalances to reciprocal ones, have enabled the establishment of trust (Bauer et al., submitted).

These findings are consistent with our view that all effective psychotherapeutic interventions involve changes in social learning across three hypothetical communication systems (Fonagy, Luyten, et al., 2015; Luyten et al., 2020). Communication system 1 focuses on reducing epistemic mistrust by presenting a model of the mind that instills a sense of recognition and independence in the patient. We concur with the viewpoint that prevention and intervention strategies should maximize the use of various empirically supported principles of change, fostering feelings of significant mirroring, and thereby enhancing the patient's sense of agency and autonomy and reducing arousal and threat. This differs from historical approaches that often rely on a limited number of these principles. The revival of agency in the patient is believed to reactivate communication system 2, promoting mentalizing and social learning through augmented epistemic trust and opening the individual's mind to the possibility of lasting change in their understanding. Enhanced mentalizing and epistemic trust, in turn, lead to engagement with communication system 3, which involves reconnecting with the social world, allowing the patient to interact with their wider social environment in new ways. For individuals with a background of early adversity and deprivation, this treatment phase also includes interventions at the social environmental level, counteracting social thinning and aiding the patient in developing a more adaptive social context and interpersonal relationships. This theoretical model offers a transtheoretical, transdiagnostic, and developmental view of psychotherapeutic change, suggesting that similar processes and mechanisms are operative in both normal psychological development and psychological interventions.

While precision medicine approaches, which tailor treatment to the specific needs of patients, may enhance the effectiveness of therapeutic interventions within each of these three communication systems, considering the complexity of developmental trajectories discussed earlier in this paper, such approaches seem more akin to science fiction than an imminent reality. However, those of us working in this field need to continue investing in precision medicine techniques. For example, the success of attachment-based approaches, grounded in research using the Adult Attachment Interview (George et al., 1985), has been notable in predicting a broad range of developmental outcomes by analyzing only four parameters of an individual's narrative as per Grice's maxims (1989) (i.e., quantity, quality, relation, and manner).

As mentioned earlier, we must acknowledge that the effectiveness of psychosocial interventions for children and young people has not shown significant improvement in recent decades (Weisz et al., 2019). Therefore, we have a pressing responsibility to enhance the efficacy of such interventions in the coming years. At the same time, we must acknowledge that psychosocial interventions might have reached their maximum effectiveness. In this context, the field needs to significantly expand prevention strategies. For example, population-attributable fractions of early adversity (the degree to which psychopathological outcomes could be reduced if early adversity were prevented) typically range from 20 to 50% (Dragioti et al., 2022). Socioeconomic disparities have a similar impact on the prevalence of psychopathology and help-seeking behaviors (Evans-Lacko et al., 2018; Lund et al., 2018). The remarkable effectiveness of prevention strategies in reducing the prevalence of somatic diseases has not been matched by equivalent success in the realm of psychological disorders. Despite considerable advances in understanding the crucial role of secure attachment relationships and an emotionally supportive environment in child development, it is surprising that many children still grow up in environments lacking these elements. For instance, while the impacts of physical and sexual maltreatment are well recognized and declining in prevalence, the comparably serious consequences of verbal abuse receive less attention and its frequency is likely increasing (Li et al., 2022). It is notable that many parents and children are often more knowledgeable about their cellphones than about their own and each other's minds.

Discussion and conclusions

In this paper, we have outlined various potential directions for the future of developmental psychopathology, while acknowledging that our perspectives are inherently shaped by our own views, interests, and sociocultural context. We recognize that many of the potential developments we have identified may not come to fruition. Nevertheless, we earnestly hope for significant improvements in both the availability and effectiveness of prevention and intervention strategies in the years ahead. As Abraham Lincoln aptly stated, "The best way to predict the future is to create it." Developmental psychopathologists play a crucial role in this endeavor, and Dante Cicchetti's work continues to be a guiding force. His insights will keep inspiring us to advance from developmental discoveries to a deeper understanding of mental disorders, striving towards the ultimate aim of scalable prevention.

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References

Allen, J. G. (2021). *Trusting in psychotherapy*. American Psychiatric Press.

Bauer, A., Stevens, M., Purtscheller, D., Knapp, M., & Fonagy, P., Evans-Lacko, S., & Paul, J. (2021). Mobilising social support to improve mental health for children and adolescents: A systematic review using principles of realist synthesis. *PLoS One*, *16*(5), e0251750. https://doi.org/10.1371/journal.pone.0251750

Beeghly, M., & Cicchetti, D. (1994). Child maltreatment, attachment, and the self system: Emergence of an internal state lexicon in toddlers at high social risk. *Development and Psychopathology*, *6*(1), 5–30. https://doi.org/10.1017/S095457940000585X

Berthelot, N., Savard, C., Lemieux, R., Garon-Bissonnette, J., Ensink, K., & Godbout, N. (2022). Development and validation of a self-report measure assessing failures in the mentalization of trauma and adverse relationships. *Child Abuse & Neglect*, *128*, 105017. https://doi.org/10.1016/j.chiabu.2021.105017

Bleidorn, W., Hopwood, C. J., Back, M. D., Denissen, J. J. A., Hennecke, M., Jokela, M., Kandler, C., Lucas, R. E., Luhmann, M., Orth, U., Roberts, B. W., Wagner, J., Wrzus, C., & Zimmermann, J. (2020). Longitudinal Experience-Wide Association Studies—a framework for studying personality change. *European Journal of Personality*, *34*(3), 285–300. https://doi.org/10.1002/per.2247

Bleys, D., Luyten, P., Soenens, B., & Claes, S. (2018). Gene-environment interactions between stress and 5-HTTLPR in depression: A meta-analytic update. *Journal of Affective Disorders*, *226*, 339–345. https://doi.org/10.1016/j.jad.2017.09.050

Bonanno, G. A., & Diminich, E. D. (2013). Annual Research Review: Positive adjustment to adversity—trajectories of minimal-impact resilience and emergent resilience. *Journal of Child Psychology and Psychiatry*, *54*(4), 378–401. https://doi.org/10.1111/jcpp.12021

Borelli, J. L., Cohen, C., Pettit, C., Normandin, L., Target, M., Fonagy, P., & Ensink, K. (2019). Maternal and child sexual abuse history: An intergenerational exploration of children's adjustment and maternal trauma-reflective functioning. *Frontiers in Psychology*, *10*, 1062. https://doi.org/10.3389/fpsyg.2019.01062

Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, *32*(7), 513–531. https://doi.org/10.1037/0003-066X.32.7.513

Bronfenbrenner, U., & Morris, P. A. (2007). The bioecological model of human development. In W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology*, Theoretical models of human development, *1*, 6th edn. WIley. https://doi.org/10.1002/9780470147658.chpsy0114

Brown, M. P., Ng, R., Lisle, J., Koenig, M., Sannes, D., Rogosch, F., & Cicchetti, D. (2023). Mind-mindedness in a high-risk sample: Differential benefits for developmental outcomes based on child maltreatment. *Developmental Psychology*, *59*(6), 1126–1135. https://doi.org/10.1037/dev0001506

Cacioppo, J. T., Cacioppo, S., Capitanio, J. P., & Cole, S. W. (2015). The neuroendocrinology of social isolation. *Annual Review of Psychology*, *66*(1), 733–767. https://doi.org/10.1146/annurev-psych-010814-015240

Cacioppo, S., Capitanio, J. P., & Cacioppo, J. T. (2014). Toward a neurology of loneliness. *Psychological Bulletin*, *140*(6), 1464–1504. https://doi.org/10.1037/a0037618

Cacioppo, S., Grippo, A. J., London, S., Goossens, L., & Cacioppo, J. T. (2015). Loneliness: Clinical import and interventions. *Perspectives on Psychological Science*, *10*(2), 238–249. https://doi.org/10.1177/1745691615570616

Campbell, C., Tanzer, M., Saunders, R., Booker, T., Allison, E., Li, E., O'Dowda, C., Luyten, P., & Fonagy, P. (2021). Development and validation of a self-report measure of epistemic trust. *PLOS One*, *16*(4), e0250264. https://doi.org/10.1371/journal.pone.0250264

Cangelosi, A., & Schlesinger, M. (2018). From babies to robots: The contribution of developmental robotics to developmental psychology. *Child Development Perspectives*, *12*(3), 183–188. https://doi.org/10.1111/cdep.12282

Caspi, A., Houts, R. M., Belsky, D. W., Goldman-Mellor, S. J., Harrington, H., Israel, S., Meier, M. H., Ramrakha, S., Shalev, I., Poulton, R., & Moffitt, T. E. (2014). The p factor: One general psychopathology factor in the structure of psychiatric disorders? *Clinical Psychological Science*, *2*(2), 119–137. https://doi.org/10.1177/2167702613497473

Caspi, A., & Moffitt, T. E. (2018). All for one and one for all: Mental disorders in one dimension. *American Journal of Psychiatry*, *175*(9), 831–844. https://doi.org/10.1176/appi.ajp.2018.17121383

Choate, A. M., Bornovalova, M. A., Hipwell, A. E., Chung, T., & Stepp, S. D. (2023). The general psychopathology factor (p) from adolescence to adulthood: Exploring the developmental trajectories of p using a multi-method approach. *Development and Psychopathology*, *35*(4), 1775–1793. https://doi.org/10.1017/S0954579422000463

Cicchetti, D., & Gunnar, M. R. (2008). Integrating biological measures into the design and evaluation of preventive interventions. *Development and Psychopathology*, *20*(3), 737–743. https://doi.org/10.1017/S0954579408000357

Cicchetti, D., & Rogosch, F. A. (1996). Equifinality and multifinality in developmental psychopathology. *Development and Psychopathology*, *8*(4), 597–600.

Cicchetti, D., & Toth, S. L. (2005). Child maltreatment. *Annual Review of Clinical Psychology*, *1*(1), 409–438. https://doi.org/10.1146/annurev.clinpsy.1.102803.144029

Coan, J. A., & Sbarra, D. A. (2015). Social baseline theory: The social regulation of risk and effort. *Current Opinion in Psychology*, *1*, 87–91. https://doi.org/10.1016/j.copsyc.2014.12.021

Constantinou, M. P., Goodyer, I. M., Eisler, I., Butler, S., Kraam, A., Scott, S., Pilling, S., Simes, E., Ellison, R., Allison, E., & Fonagy, P. (2019). Changes in general and specific psychopathology factors over a psychosocial intervention. *Journal of the American Academy of Child and Adolescent Psychiatry*, *58*(8), 776–786. https://doi.org/10.1016/j.jaac.2018.11.011

Corriveau, K. H., Harris, P. L., Meins, E., Fernyhough, C., Arnott, B., Elliott, L., Liddle, B., Hearn, A., Vittorini, L., & de Rosnay, M. (2009). Young children's trust in their mother's claims: Longitudinal links with attachment security in infancy. *Child Development*, *80*(3), 750–761. https://doi.org/10.1111/j.1467-8624.2009.01295.x

Csibra, G., & Gergely, G. (2009). Natural pedagogy. *Trends in Cognitive Science*, *13*(4), 148–153. https://doi.org/10.1016/j.tics.2009.01.005

Cuijpers, P. (2019). Targets and outcomes of psychotherapies for mental disorders: An overview. *World Psychiatry*, *18*(3), 276–285. https://doi.org/10.1002/wps.20661

Dagan, O., & Sagi-Schwartz, A. (2021). Early attachment networks to multiple caregivers: History, assessment models, and future research recommendations. *New Directions for Child and Adolescent Development*, *2021*(180), 9–19. https://doi.org/https://doi.org/10.1002/cad.20446

DeGarmo, D. S., Gewirtz, A. H., Li, L., Tavalire, H. F., & Cicchetti, D. (2023). The ADAPT parenting intervention benefits combat exposed fathers genetically susceptible to problem drinking. *Prevention Science*, *24*(1), 150–160. https://doi.org/10.1007/s11121-022-01424-x

Denckla, C. A., Cicchetti, D., Kubzansky, L. D., Seedat, S., Teicher, M. H., Williams, D. R., & Koenen, K. C. (2020). Psychological resilience: An update on definitions, a critical appraisal, and research recommendations. *European Journal of Psychotraumatology*, *11*(1), 1822064. https://doi.org/10.1080/20008198.2020.1822064

Doyle, C., & Cicchetti, D. (2017). From the cradle to the grave: The effect of adverse caregiving environments on attachment and relationships throughout the lifespan. *Clinical Psychology*, *24*(2), 203–217. https://doi.org/10.1111/cpsp.12192

Dragioti, E., Radua, J., Solmi, M., Arango, C., Oliver, D., Cortese, S., Jones, P. B., Il Shin, J., Correll, C. U., & Fusar-Poli, P. (2022). Global population attributable fraction of potentially modifiable risk factors for mental disorders: A meta-umbrella systematic review. *Molecular Psychiatry*, *27*(8), 3510–3519. https://doi.org/10.1038/s41380-022-01586-8

Endevelt-Shapira, Y., & Feldman, R. (2023). Mother-infant brain-to-brain synchrony patterns reflect caregiving profiles. *Biology (Basel)*, *12*(2), 284. https://doi.org/10.3390/biology12020284

Ensink, K., Begin, M., Normandin, L., & Fonagy, P. (2017). Parental reflective functioning as a moderator of child internalizing difficulties in the context of child sexual abuse. *Psychiatry Research*, *257*, 361–366. https://doi.org/10.1016/j.psychres.2017.07.051

Erikson, E. H. (1959). *Identity and the life cycle*. International Universities Press.

https://doi.org/10.1017/S0954579424000312 Published online by Cambridge University Press

Evans, S. C., Weisz, J. R., Carvalho, A. C., Garibaldi, P. M., Bearman, S. K., & Chorpita, B. F. (2020). Effects of standard and modular psychotherapies in the treatment of youth with severe irritability. *Journal of Consulting and Clinical Psychology*, *88*(3), 255–268. https://doi.org/10.1037/ccp0000456

Evans-Lacko, S., Aguilar-Gaxiola, S., Al-Hamzawi, A., Alonso, J., Benjet, C., Bruffaerts, R., Chiu, W. T., Florescu, S., de Girolamo, G., Gureje, O., Haro, J. M., He, Y., Hu, C., Karam, E. G., Kawakami, N., Lee, S., Lund, C., Kovess-Masfety, V., Levinson, D. . . . Thornicroft, G. (2018). Socio-economic variations in the mental health treatment gap for people with anxiety, mood, and substance use disorders: Results from the WHO World Mental Health (WMH) surveys. *Psychological Medicine*, *48*(9), 1560–1571. https://doi.org/10.1017/S0033291717003336

Fearon, R. P., Bakermans-Kranenburg, M. J., van Ijzendoorn, M. H., Lapsley, A. M., & Roisman, G. I. (2010). The significance of insecure attachment and disorganization in the development of children's externalizing behavior: A meta-analytic study. *Child Development*, *81*(2), 435–456. https://doi.org/10.1111/j.1467-8624.2009.01405.x

Feldman, R. (2017). The neurobiology of human attachments. *Trends in Cognitive Sciences*, *21*(2), 80–99. https://doi.org/10.1016/j.tics.2016.11.007

Fiorini, G., Saunders, R., Fonagy, P., & Midgley, N. (2022). Trajectories of change in general psychopathology levels among depressed adolescents in short-term psychotherapies. *Psychotherapy Research*, *33*(1), 1–12. https://doi.org/10.1080/10503307.2022.2040751

Fitzpatrick, O. M., Cho, E., Venturo-Conerly, K. E., Ugueto, A. M., Ng, M. Y., & Weisz, J. R. (2022). Empirically supported principles of change in youth psychotherapy: Exploring codability, frequency of use, and meta-analytic findings. *Clinical Psychological Science*, *11*(2), 326–344. https://doi.org/10.1177/21677026221120230

Fonagy, P., Campbell, C., Constantinou, M., Higgitt, A., Allison, E., & Luyten, P. (2022). Culture and psychopathology: An attempt at reconsidering the role of social learning. *Development and Psychopathology*, *34*(4), 1205–1220. https://doi.org/10.1017/S0954579421000092

Fonagy, P., & Luyten, P. (2018). Conduct problems in youth and the RDoC approach: A developmental, evolutionary-based view. *Clinical Psychology Review*, *64*, 57–76. https://doi.org/10.1016/j.cpr.2017.08.010

Fonagy, P., & Luyten, P. (2021). Socioeconomic and sociocultural factors affecting access to psychotherapies: The way forward. *World Psychiatry*, *20*(3), 315–316. https://doi.org/10.1002/wps.20911

Fonagy, P., Luyten, P., & Allison, E. (2015). Epistemic petrification and the restoration of epistemic trust: A new conceptualization of borderline personality disorder and its psychosocial treatment. *Journal of Personality Disorders*, *29*(5), 575–609. https://doi.org/10.1521/pedi.2015.29.5.575

Fonagy, P., Luyten, P., Allison, E., & Campbell, C. (2017). What we have changed our minds about: Part 1. Borderline personality disorder as a limitation of resilience. *Borderline Personality Disorder and Emotion Dysregulation*, *4*(1), 11. https://doi.org/10.1186/s40479-017-0061-9

Fonagy, P., Speranza, M., Luyten, P., Kaess, M., Hessels, C., & Bohus, M. (2015). ESCAP Expert Article: Borderline personality disorder in adolescence: An expert research review with implications for clinical practice. *European Child & Adolescent Psychiatry*, *24*(11), 1307–1320. https://doi.org/10.1007/s00787-015-0751-z

Fraley, R. C., & Roberts, B. W. (2005). Patterns of continuity: A dynamic model for conceptualizing the stability of individual differences in psychological constructs across the life course. *Psychological Review*, *112*(1), 60–74. https://doi.org/10.1037/0033-295X.112.1.60

Frank, M. C. (2023). Baby steps in evaluating the capacities of large language models. *Nature Reviews Psychology*, *2*(8), 451–452. https://doi.org/10.1038/s44159-023-00211-x

Freud, A. (1981). The concept of developmental lines: Their diagnostic significance. *Psychoanalytic Study of the Child*, *36*(1), 129–136. https://doi.org/10.1080/00797308.1981.11823333

Freud, S. (1920). The psychogenesis of a case of homosexuality in a woman. In J. Strachey (Eds.), *The standard edition of the complete psychological works of Sigmund Freudl* (vol. *18*, pp. 145–172). Hogarth Press.

George, C., Kaplan, N., & Main, M. (1985). *The adult attachment interview*. Department of Psychology, University of California at Berkeley.

Gergely, G. (2013). Ostensive communication and cultural learning: The natural pedagogy hypothesis. In J. Metcalfe, & H. S. Terrace (Eds.), *Agency and joint attention* (pp. 139–151). Oxford University Press.

Golds, L., MacBeth, A., & de Kruiff, K. (2020). Disentangling genes, attachment, and environment: A systematic review of the developmental psychopathology literature on gene-environment interactions and attachment. *Development and Psychopathology*, *32*(1), 357–381. https://doi.org/10.1017/S0954579419000142

Grice, H. P. (1989). *Studies in the way of words*. Harvard University Press.

Groh, A. M., Roisman, G. I., van Ijzendoorn, M. H., Bakermans-Kranenburg, M. J., & Fearon, R. P. (2012). The significance of insecure and disorganized attachment for children's internalizing symptoms: A meta-analytic study. *Child Development*, *83*(2), 591–610. https://doi.org/10.1111/j.1467-8624.2011.01711.x

Guild, D. J., Alto, M. E., Handley, E. D., Rogosch, F., Cicchetti, D., & Toth, S. L. (2021). Attachment and affect between mothers with depression and their children: Longitudinal outcomes of child parent psychotherapy. *Research on Child and Adolescent Psychopathology*, *49*(5), 563–577. https://doi.org/10.1007/s10802-020-00681-0

Handley, E. D., Russotti, J., Rogosch, F. A., & Cicchetti, D. (2019). Developmental cascades from child maltreatment to negative friend and romantic interactions in emerging adulthood. *Development and Psychopathology*, *31*(5), 1649–1659. https://doi.org/10.1017/s095457941900124x

Handley, E. D., Russotti, J., Ross, A. J., Toth, S. L., & Cicchetti, D. (2023). A person-centered data analytic approach to dopaminergic polygenic moderation of child maltreatment exposure. *Developmental Psychobiology*, *65*(5), e22403. https://doi.org/10.1002/dev.22403

Hawks, S., & Meehan, C. L. (2014). Maternal and allomaternal responsiveness: The significance of cooperative caregiving in attachment theory. In H. Keller, & H. Otto (Eds.), *Different faces of attachment: Cultural variations on a universal human need* (pp. 113–140). Cambridge University Press. https://doi.org/10.1017/CBO9781139226684.008

Henrich, J. (2020). *The WEIRDest people in the world: How the West became psychologically peculiar and particularly prosperous*. Farrar, Straus and Giroux.

Hogg, B., Gardoki-Souto, I., Valiente-Gómez, A., Rosa, A. R., Fortea, L., Radua, J., Amann, B. L., & Moreno-Alcázar, A. (2023). Psychological trauma as a transdiagnostic risk factor for mental disorder: An umbrella meta-analysis. *European Archives of Psychiatry and Clinical Neuroscience*, *273*(2), 397–410. https://doi.org/10.1007/s00406-022-01495-5

Hopwood, C. J., Wright, A. G. C., & Bleidorn, W. (2022). Person-environment transactions differentiate personality and psychopathology. *Nature Reviews Psychology*, *1*(1), 55–63. https://doi.org/10.1038/s44159-021-00004-0

Hrdy, S. B. (2016). Variable postpartum responsiveness among humans and other primates with "cooperative breeding": A comparative and evolutionary perspective. *Hormones and Behavior*, *77*, 272–283. https://doi.org/10.1016/j.yhbeh.2015.10.016

Hutsebaut, J., Debbané, M., & Sharp, C. (2020). Designing a range of mentalizing interventions for young people using a clinical staging approach to borderline pathology. *Borderline Personality Disorder and Emotion Dysregulation*, *7*(1), 6. https://doi.org/10.1186/s40479-020-0121-4

Jolicoeur-Martineau, A., Belsky, J., Szekely, E., Widaman, K. F., Pluess, M., Greenwood, C., & Wazana, A. (2020). Distinguishing differential susceptibility, diathesis-stress, and vantage sensitivity: Beyond the single gene and environment model. *Development and Psychopathology*, *32*(1), 73–83. https://doi.org/10.1017/s0954579418001438

Kazdin, A. E. (2011). Evidence-based treatment research: Advances, limitations, and next steps. *American Psychologist*, *66*(8), 685–698. https://doi.org/10.1037/a0024975

Kazdin, A. E., & Blase, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science*, *6*(1), 21–37. https://doi.org/10.1177/1745691610393527

Kochanska, G., & An, D. (in press). The parent's and the child's internal working models of each other moderate cascades from child difficulty to socialization outcomes: Preliminary evidence for dual moderation? *Development and Psychopathology*, 1–14. https://doi.org/10.1017/S0954579422001365

Konner, M. (2010). *The evolution of childhood*. Belknap Press.

Lahey, B. B., Moore, T. M., Kaczkurkin, A. N., & Zald, D. H. (2021). Hierarchical models of psychopathology: Empirical support, implications, and remaining issues. *World Psychiatry*, *20*(1), 57–63. https://doi.org/10.1002/wps.20824

Leichsenring, F., Steinert, C., Rabung, S., & Ioannidis, J. P. A. (2022). The efficacy of psychotherapies and pharmacotherapies for mental disorders in adults: An umbrella review and meta-analytic evaluation of recent meta-analyses. *World Psychiatry*, *21*(1), 133–145. https://doi.org/10.1002/wps.20941

Leighton, C., Botto, A., Silva, J. R., Jimenez, J. P., & Luyten, P. (2017). Vulnerability or sensitivity to the environment? Methodological issues, trends, and recommendations in gene-environment interactions research in human behavior. *Frontiers in Psychiatry*, *8*(106), 106. https://doi.org/10.3389/fpsyt.2017.00106

Li, E. T., Dube, A. T., Singh, N., Khamisa, K., Fiorini, G., & Fonagy, P. (2022). *Childhood verbal abuse: A systematic review of the current evidence*. Report for Verbal Abuse Foundation. Division of Psychology and Language Sciences,

Lund, C., Brooke-Sumner, C., Baingana, F., Baron, E. C., Breuer, E., Chandra, P., Haushofer, J., Herrman, H., Jordans, M., Kieling, C., Medina-Mora, M. E., Morgan, E., Omigbodun, O., Tol, W., Patel, V., & Saxena, S. (2018). Social determinants of mental disorders and the Sustainable Development Goals: A systematic review of reviews. *Lancet Psychiatry*, *5*(4), 357–369. https://doi.org/10.1016/S2215-0366(18)30060-9

Luyten, P., Campbell, C., Allison, E., & Fonagy, P. (2020). The mentalizing approach to psychopathology: State of the art and future directions. *Annual Review of Clinical Psychology*, *16*(1), 297–325. https://doi.org/10.1146/annurev-clinpsy-071919-015355

Luyten, P., Campbell, C., & Fonagy, P. (2021). Rethinking the relationship between attachment and personality disorder. *Current Opinion in Psychology*, *37*, 109–113. https://doi.org/10.1016/j.copsyc.2020.11.003

Luyten, P., & Fonagy, P. (2022). Integrating and differentiating personality and psychopathology: A psychodynamic perspective. *Journal of Personality*, *90*(1), 75–88. https://doi.org/https://doi.org/10.1111/jopy.12656

Luyten, P., Nijssens, L., Fonagy, P., & Mayes, L. C. (2017). Parental reflective functioning: Theory, research, and clinical applications. *Psychoanalytic Study of the Child*, *70*(1), 174–199. https://doi.org/10.1080/00797308.2016.1277901

Madigan, S., Deneault, A. A., Racine, N., Park, J., Thiemann, R., Zhu, J., Dimitropoulos, G., Williamson, T., Fearon, P., Cénat, J. M., McDonald, S., Devereux, C., & Neville, R. D. (2023). Adverse childhood experiences: A meta-analysis of prevalence and moderators among half a million adults in 206 studies. *World Psychiatry*, *22*(3), 463–471. https://doi.org/10.1002/wps.21122

Martin, J. S., Ringen, E. J., Duda, P., & Jaeggi, A. V. (2020). Harsh environments promote alloparental care across human societies. *Proceedings of the Royal Society B: Biological Sciences*, *287*(1933), 20200758. https://doi.org/10.1098/rspb.2020.0758

Martins, J., Yusupov, N., Binder, E. B., Brückl, T. M., & Czamara, D. (2022). Early adversity as the prototype gene × environment interaction in mental disorders? *Pharmacology Biochemistry and Behavior*, *215*, 173371. https://doi.org/10.1016/j.pbb.2022.173371

Masten, A. S., Lucke, C. M., Nelson, K. M., & Stallworthy, I. C. (2021). Resilience in development and psychopathology: Multisystem perspectives. *Annual Review of Clinical Psychology*, *17*(1), 521–549. https://doi.org/10.1146/annurev-clinpsy-081219-120307

McCrory, E., De Brito, S. A., & Viding, E. (2012). The link between child abuse and psychopathology: A review of neurobiological and genetic research. *Journal of the Royal Society of Medicine*, *105*(4), 151–156. https://doi.org/10.1258/jrsm.2011.110222

McCrory, E., Foulkes, L., & Viding, E. (2022). Social thinning and stress generation after childhood maltreatment: A neurocognitive social transactional model of psychiatric vulnerability. *Lancet Psychiatry*, *9*(10), 828–837. https://doi.org/10.1016/s2215-0366(22)00202-4

Meins, E. (2013). Sensitive attunement to infants' internal states: Operationalizing the construct of mind-mindedness. *Attachment and Human Development*, *15*(5-6), 524–544. https://doi.org/10.1080/14616734.2013.830388

Mesman, J., Minter, T., & Angnged, A. (2016). Received sensitivity: Adapting Ainsworth's scale to capture sensitivity in a multiple-caregiver context. *Attachment and Human Development*, *18*(2), 101–114. https://doi.org/10.1080/14616734.2015.1133681

Mesman, J., Minter, T., Angnged, A., Cisse, I. A. H., Salali, G. D., & Migliano, A. B. (2018). Universality without uniformity: A culturally inclusive approach to sensitive responsiveness in infant caregiving. *Child Development*, *89*(3), 837–850. https://doi.org/10.1111/cdev.12795

Norton, P. J., & Paulus, D. J. (2016). Toward a unified treatment for emotional disorders: Update on the science and practice. *Behavior Therapy*, *47*(6), 854–868. https://doi.org/10.1016/j.beth.2015.07.002

O'Madagain, C., & Tomasello, M. (2019). Joint attention to mental content and the social origin of reasoning. *Synthese*, *198*(5), 4057–4078. https://doi.org/10.1007/s11229-019-02327-1

Oppenheim, D., Koren-Karie, N., & Sagi, A. (2001). Mothers' empathic understanding of their preschoolers' internal experience: Relations with early attachment. *International Journal of Behavioral Development*, *25*(1), 16–26. https://doi.org/10.1080/01650250042000096

Paniagua, F. A. (2000). Culture-bound syndromes, cultural variations, and psychopathology. In I. Cuéllar, & F. A. Paniagua (Eds.), *Handbook of multicultural mental health* (pp. 139–169). Academic Press. https://doi.org/10.1016/B978-012199370-2/50009-2

Patalay, P., Fonagy, P., Deighton, J., Belsky, J., Vostanis, P., & Wolpert, M. (2015). A general psychopathology factor in early adolescence. *British Journal of Psychiatry*, *207*(1), 15–22. https://doi.org/10.1192/bjp.bp.114.149591

Picardi, A., Giuliani, E., & Gigantesco, A. (2020). Genes and environment in attachment. *Neuroscience & Biobehavioral Reviews*, *112*, 254–269. https://doi.org/10.1016/j.neubiorev.2020.01.038

Pollak, S. D. (2015). Developmental psychopathology: Recent advances and future challenges. *World Psychiatry*, *14*(3), 262–269. https://doi.org/10.1002/wps.20237

Raby, K. L., Cicchetti, D., Carlson, E. A., Cutuli, J. J., Englund, M. M., & Egeland, B. (2012). Genetic and caregiving-based contributions to infant attachment: Unique associations with distress reactivity and attachment security. *Psychological Science*, *23*(9), 1016–1023. https://doi.org/10.1177/0956797612438265

Russotti, J., Warmingham, J. M., Duprey, E. B., Handley, E. D., Manly, J. T., Rogosch, F. A., & Cicchetti, D. (2021). Child maltreatment and the development of psychopathology: The role of developmental timing and chronicity. *Child Abuse & Neglect*, *120*, 105215. https://doi.org/10.1016/j.chiabu.2021.105215

Schiele, M. A., Gottschalk, M. G., & Domschke, K. (2020). The applied implications of epigenetics in anxiety, affective and stress-related disorders - A review and synthesis on psychosocial stress, psychotherapy and prevention. *Clinical Psychology Review*, *77*, 101830. https://doi.org/10.1016/j.cpr.2020.101830

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*(3), 737–754. https://doi.org/10.1111/j.1467-9507.2007.00457.x

Sharp, C., & Wall, K. (2021). DSM-5 level of personality functioning: Refocusing personality disorder on what it means to be human. *Annual Review of Clinical Psychology*, *17*(1), 313–337. https://doi.org/10.1146/annurev-clinpsy-081219-105402

Skeen, S., Laurenzi, C. A., Gordon, S. L., du Toit, S., Tomlinson, M., Dua, T., Fleischmann, A., Kohl, K., Ross, D., Servili, C., Brand, A. S., Dowdall, N., Lund, C., van der Westhuizen, C., Carvajal-Aguirre, L., Eriksson de Carvalho, C., & Melendez-Torres, G. J. (2019). Adolescent mental health program components and behavior risk reduction: A meta-analysis. *Pediatrics*, *144*(2) , e20183488. https://doi.org/10.1542/peds.2018-3488

Slade, A. (2005). Parental reflective functioning: An introduction. *Attachment and Human Development*, *7*(3), 269–281. https://doi.org/10.1080/14616730500245906

Smeeth, D., Beck, S., Karam, E. G., & Pluess, M. (2021). The role of epigenetics in psychological resilience. *Lancet Psychiatry*, *8*(7), 620–629. https://doi.org/10.1016/S2215-0366(20)30515-0

https://doi.org/10.1017/S0954579424000312 Published online by Cambridge University Press

Smith, G. T., Atkinson, E. A., Davis, H. A., Riley, E. N., & Oltmanns, J. R. (2020). The general factor of psychopathology. *Annual Review of Clinical Psychology*, *16*(1), 75–98. https://doi.org/10.1146/annurev-clinpsy-071119-115848

Smith, K. E., & Pollak, S. D. (2021a). Rethinking concepts and categories for understanding the neurodevelopmental effects of childhood adversity. *Perspectives on Psychological Science*, *16*(1), 67–93. https://doi.org/10.1177/1745691620920725

Smith, K. E., & Pollak, S. D. (2021b). Social relationships and children's perceptions of adversity. *Child Development Perspectives*, *15*(4), 228–234. https://doi.org/10.1111/cdep.12427

Sperber, D., Clement, F., Heintz, C., Mascaro, O., Mercier, H., Origgi, G., & Wilson, D. (2010). Epistemic vigilance. *Mind & Language*, *25*(4), 359–393. https://doi.org/10.1111/j.1468-0017.2010.01394.x

Sprooten, E., Franke, B., & Greven, C. U. (2022). The P-factor and its genomic and neural equivalents: An integrated perspective. *Molecular Psychiatry*, *27*(1), 38–48. https://doi.org/10.1038/s41380-021-01031-2

Swerbenski, H. G., Sturge-Apple, M. L., Messina, G., Toth, S. L., Rogosch, F., & Cicchetti, D. (2023). Maternal childhood maltreatment trauma resolution: Development of a novel narrative coding measure and implications for intergenerational parenting processes. *Development and Psychopathology*, *1-16*, 1–16. https://doi.org/10.1017/S0954579423001256

Tomasello, M. (2010). *Origins of human communication*. MIT Press.

Tomasello, M. (2020a). The adaptive origins of uniquely human sociality. *Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences*, *375*(1803), 20190493. https://doi.org/10.1098/rstb.2019.0493

Tomasello, M. (2020b). The role of roles in uniquely human cognition and sociality. *Journal for the Theory of Social Behaviour*, *50*(1), 2–19. https://doi.org/10.1111/jtsb.12223

Verhage, M. L., Fearon, R. M. P., Schuengel, C., van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Madigan, S., Roisman, G. I., Oosterman, M., Behrens, K. Y., Wong, M. S., Mangelsdorf, S., Priddis, L. E., Brisch, K-H., The Collaboration on Attachment Transmission Synthesis (2018). Examining ecological constraints on the intergenerational transmission of attachment via individual participant data meta-analysis. *Child Development*, *89*(6), 2023–2037. https://doi.org/10.1111/cdev.13085

Waddington, C. H. (1957). *The strategy of the genes*. Allen & Unwin.

Weisz, J. R., Kuppens, S., Ng, M. Y., Eckshtain, D., Ugueto, A. M., Vaughn-Coaxum, R., Jensen-Doss, A., Hawley, K. M., Krumholz Marchette, L. S., Chu, B. C., Weersing, V. R., & Fordwood, S. R. (2017). What five decades of research tells us about the effects of youth psychological therapy: A multilevel meta-analysis and implications for science and practice. *American Psychologist*, *72*(2), 79–117. https://doi.org/10.1037/a0040360

Weisz, J. R., Kuppens, S., Ng, M. Y., Vaughn-Coaxum, R. A., Ugueto, A. M., Eckshtain, D., & Corteselli, K. A. (2019). Are psychotherapies for young people growing stronger? Tracking trends over time for youth anxiety, depression, attention-deficit/hyperactivity disorder, and conduct problems. *Perspectives on Psychological Science*, *14*(2), 216–237. https://doi.org/10.1177/1745691618805436

Widiger, T. A., Sellbom, M., Chmielewski, M., Clark, L. A., DeYoung, C. G., Kotov, R., Krueger, R. F., Lynam, D. R., Miller, J. D., Mullins-Sweatt, S., Samuel, D. B., South, S. C., Tackett, J. L., Thomas, K. M., Watson, D., & Wright, A. G. C. (2018). Personality in a hierarchical model of psychopathology. *Clinical Psychological Science*, *7*(1), 77–92. https://doi.org/10.1177/2167702618797105

Xu, Y., Harms, M. B., Green, C. S., Wilson, R. C., & Pollak, S. D. (2023). Childhood unpredictability and the development of exploration. *Proceedings of the National Academy of Sciences*, *120*(49), e2303869120. https://doi.org/10.1073/pnas.2303869120

Zeegers, M. A. J., Colonnesi, C., Stams, G. J. M., & Meins, E. (2017). Mind matters: A meta-analysis on parental mentalization and sensitivity as predictors of infant-parent attachment. *Psychological Bulletin*, *143*(12), 1245–1272. https://doi.org/10.1037/bul0000114