

EDITORIAL

The legacy of Nicki R. Crick's contributions to developmental psychopathology

DANTE CICHETTI^a AND DIANNA MURRAY-CLOSE^b

^aUniversity of Minnesota Institute of Child Development; and ^bUniversity of Vermont

This Special Issue of *Development and Psychopathology* is devoted to the legacy of Nicki R. Crick. At the time of her passing on October 28, 2012, Nicki was a Distinguished McKnight Professor and Irving B. Harris Professor of Child Psychology at the Institute of Child Development, University of Minnesota. Crick served as the director of the Institute of Child Development from January 2005 to June 2011. To date, there have been few Special Issues or Special Sections in *Development and Psychopathology* devoted to the life's work of one individual. Known internationally for her creative and innovative research in the 20 years since she completed her PhD in clinical psychology from Vanderbilt University, Crick made many significant and long-lasting contributions to the fields of developmental psychology and developmental psychopathology. Nicki conducted groundbreaking research on the topics of aggression, peer victimization, positive youth development, social cognition, and personality pathology.

To date, over 30 of her publications have attained the status of citation classics. Several of her papers are among the most influential publications in the entire field of developmental science. Moreover, Crick's research fostered the development of interventions and policy initiatives to address aggressive conduct. In addition, Nicki translated her research on relational aggression into work on potential precursors to borderline personality disorder in children and adolescents.

In a highly influential set of studies, Crick radically altered the way that researchers, clinicians, teachers, and parents understand aggressive behavior. Crick challenged the field to consider aggressive behaviors that were not physical in nature. Building on theories of *indirect aggression*, in which

the aggressor obscures his or her intention to cause harm (Björkqvist, Lagerspetz, & Kaukiainen, 1992), and *social aggression*, in which the aggressor targets the victim's peer acceptance and inclusion (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989), Crick and Grotper (1995) argued that aggressive strategies among youth are often focused on damage to interpersonal relationships. In this seminal publication, the authors coined the term *relational aggression* to capture behaviors that used relationship manipulation to hurt or harm others, such as malicious gossip, social exclusion, and threats of friendship withdrawal.

In the two decades following the publication of Crick and Grotper (1995), a large body of research has emerged documenting the origins, course, and outcomes associated with relational aggression: the article has been cited over 3,000 times. The impact of this study reflects the authors' innovative perspective regarding aggressive girls. In contrast to the prevailing assumption in the field at the time that girls were not aggressive, Crick and Grotper (1995) documented that girls engaged in relational forms of aggression with some frequency. Moreover, in several studies of peer victimization, Crick and colleagues found that girls were more likely to be targeted by relational, rather than physical, forms of aggression (e.g., Crick, Casas, & Ku, 1999; Cullerton-Sen & Crick, 2005). Although ensuing research has demonstrated that boys also frequently perpetrate relational aggression (Card, Stucky, Sawalani, & Little, 2008), the inclusion of relational aggression remains critical in studies aimed at understanding the aggressive behavior patterns of girls and women (see Ostrov & Godleski, 2010).

Crick also made significant contributions to our understanding of the developmental processes involved in youth maladjustment. In collaboration with her PhD mentor, Dr. Kenneth Dodge, Crick published a highly influential review of the social information processing mechanisms associated with youth social adjustment (Crick & Dodge, 1994). In addition to integrating previous work in the area, this reformulated model underscored the need to consider nonlinear and reciprocal effects, the role of development, and the influence

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Address correspondence and reprint requests to: Dante Cicchetti, Institute of Child Development, University of Minnesota, 51 East River Road, Minneapolis, MN 55455; E-mail: cicchett@umn.edu; or Dianna Murray-Close, Department of Psychological Science, University of Vermont, 210A John Dewey Hall, Burlington, VT 05405; E-mail: dmurrayc@uvm.edu.

of emotional processes in maladjusted children's social cognition. This review, cited over 3,000 times, has guided much of the past two decades of research on the topic of social information processing. In her own work, Crick investigated how social information processing patterns differed among youth exhibiting distinct subtypes of aggression (Crick, Grotpeter, & Bigbee, 2002). Crick also examined the role of emotional processes in relational aggression (Crick, 1995), and in later years she adopted multilevel approaches (e.g., psychophysiological: Murray-Close & Crick, 2007; and molecular genetic: Cicchetti, Rogosch, Hecht, Crick, & Hetzel, 2014) to address this research question. Crick's social information processing research has provided a critical foundation for intervention programs aimed at reducing youth perpetration of relational aggression (e.g., Leff et al., 2009).

Crick's work in relational aggression and peer victimization piqued her interest in borderline personality disorder (BPD). Some of the symptom characteristics of adult patients with BPD bore similarities to Crick's research on relational aggression in children. Crick developed and validated the Borderline Personality Features Scale for Children (BPFS-C) child self-report measure to ascertain whether borderline personality features were present in childhood (Crick, Murray-Close, & Woods, 2005). The BPFS-C has been used to chart early developmental precursors and pathways to BPD. In addition, the development of the BPFS-C also led to several collaborative prospective studies of borderline personality features in childhood in maltreated children (Cicchetti et al., 2014; Hecht, Cicchetti, Rogosch, & Crick, 2014). Furthermore, Geiger and Crick (2001) published one of the earliest papers on a developmental psychopathology approach to personality disorders that was influential in the development of two coedited Special Issues of *Development and Psychopathology* in 2009 devoted to precursors and diverse pathways to personality disorder in children and adolescents (Cicchetti & Crick, 2009a, 2009b).

Throughout her career, Crick was highly committed to exploring the development of adjustment difficulties in overlooked and underserved populations, including aggressive girls, inner-city youth, maltreated children (Cullerton-Sen et al., 2008; Murray-Close, Han, Cicchetti, Crick, & Rogosch, 2008), and children in non-Western countries. Crick's seminal research on the topic of relational aggression developed from her belief that traditional conceptualizations of aggression were missing the behavior problems that were most typical in female peer groups. In the final decade of her career, Crick became increasingly interested in understanding how the development of both aggression and peer victimization differed across cultural milieus, including in non-Western populations (e.g., Kawabata, Crick, & Hamaguchi, 2010). In addition to addressing substantive research questions, Crick and colleagues meticulously developed culturally sensitive tools for assessing constructs such as relational aggression (Kawabata et al., 2010; Kawabata, Tseng, Murray-Close, & Crick, 2012) and social information processing (Leff et al., 2006) in diverse samples. As such, Crick leaves

a rich tradition of exploring the role of culture and context in developmental psychopathology.

In her latter years, Nicki devoted herself to investigating the effects that exposure to war, violence, and child maltreatment had on Acholi youth in Uganda. The Acholi youth of northern Uganda have experienced and been forced to participate in horrendous violence and maltreatment due to a 20-year war between a rebel group, the Lord's Resistance Army (LRA) and the Ugandan government. The trauma experienced by Acholi youth has been very extreme: over 30,000 have been abducted by the LRA, with boys forced to kill friends, family, and others, whereas girls have been forced into sexual slavery. Children have lived the majority of their lives in constant fear of being abducted or killed by the LRA. Abductees who have managed to escape the LRA have typically been feared by their families and former community members, and have faced rejection and exclusion. A ceasefire was declared, providing a safe and optimal time for research and interventions to be conducted. Nicki, Kathryn Hecht, and Peter Ralston faithfully visited Uganda over the course of 3 years. Crick, Hecht, and Ralston contributed a great deal to Uganda. They brought their knowledge of child development there and formed genuine connections with the Ugandan people. Unfortunately, Nicki did not live to see this work accomplished.

Throughout her career, Crick was passionately committed to providing exceptional training to the students in her Social Development Lab, affectionately known as "Cricksters." Crick staunchly believed that the best approach to mentorship consisted of inspiring students to appreciate the joy and excitement inherent in the research process. To this end, Crick seized every opportunity to support her students, and she focused on fostering a compassionate, generous, and vibrant laboratory filled with laughter and camaraderie. This created a research community reminiscent of a close family; laboratory events at conferences often felt like family reunions uniting earlier and new generations of Cricksters. Crick provided an ideal context for her students to develop and grow as scholars, and her contributions live on in the many students who continue her work in research, teaching, and applied settings.

As a colleague, Nicki was always interested in the pursuit of knowledge and truth. She was generous in sharing her ideas with research colleagues around the world. Nicki worked well with people from all walks of life, collaborating with numerous community and cultural groups in the United States and beyond. It was always a fun and rewarding experience to brainstorm ideas with Nicki. She was undefensive and never exhibited premature cognitive closure to ideas that were different from her own. In ways similar to what a great athlete brings to a team, Crick strove to help make those around her better.

Crick's many contributions provide several important insights that should guide future work in the area of developmental psychopathology. For instance, Crick's research underscores the critical need to test unspoken assumptions in developmental psychopathology research; her refutation of

the popular view that girls do not exhibit significant adjustment problems prior to adolescence and that borderline personality pathology does not emerge until adulthood steered the field in groundbreaking new directions. In addition, Crick combined theoretical sophistication with methodological rigor. At heart a humanitarian, Crick gravitated to research questions focused on how to promote positive adjustment among populations that were largely ignored by developmental psychopathology scientists. Her most recent program of work with child soldiers in Uganda highlights Crick's ongoing commitment to underserved populations. Crick deeply

respected and honored the lessons that the Ugandan Acholi youth could teach the rest of the world, including how to live joyfully and generously in the face of trauma and adversity. Dozens of Crick's students and colleagues are continuing her important research in the areas of aggression, gender, social information processing, personality pathology, and culture. Perhaps of the most importance, Crick's legacy reminds us that the most groundbreaking and innovative developmental psychopathology research is inspired by deep caring and an unrelenting commitment to promoting the well-being of our world's youth.

References

- Björkqvist, K., Lagerspetz, K. M., & Kaukiainen, A. (1992). Do girls manipulate and boys fight? Developmental trends in regard to direct and indirect aggression. *Aggressive Behavior, 18*, 117–127.
- Cairns, R. B., Cairns, B. D., Neckerman, H. J., Ferguson, L. L., & Gariépy, J.-L. (1989). Growth and aggression: I. Childhood to early adolescence. *Developmental Psychology, 25*, 320–330.
- Card, N. A., Stucky, B. D., Sawalani, G. M., & Little, T. D. (2008). Direct and indirect aggression during childhood and adolescence: A meta-analytic review of gender differences, intercorrelations, and relations to maladjustment. *Child Development, 79*, 1185–1229.
- Cicchetti, D., & Crick, N. R. (Eds.). (2009a). Precursors of and diverse pathways to personality disorder in children and adolescents: Part 1 [Special Issue]. *Development and Psychopathology, 21*, 683–1030.
- Cicchetti, D., & Crick, N. R. (Eds.). (2009b). Precursors of and diverse pathways to personality disorder in children and adolescents: Part 2 [Special Issue]. *Development and Psychopathology, 21*, 1031–1381.
- Cicchetti, D., Rogosch, F. A., Hecht, K. F., Crick, N. R., & Hetzel, S. (2014). Moderation of maltreatment effects of childhood borderline personality symptoms by gender and oxytocin receptor and FK506 binding protein 5 genes. *Development and Psychopathology, 26*, 831–849 [this issue].
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology, 7*, 313–322.
- Crick, N. R., Casas, J. F., & Ku, H.-C. (1999). Relational and physical forms of peer victimization in preschool. *Developmental Psychology, 35*, 376–385.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin, 115*, 74–101.
- Crick, N. R., & Grotpeter, J. K. (1995). Relational aggression, gender, and social-psychological adjustment. *Child Development, 66*, 710–722.
- Crick, N. R., Grotpeter, J. K., & Bigbee, M. A. (2002). Relationally and physically aggressive children's intent attributions and feelings of distress for relational and instrumental peer provocations. *Child Development, 73*, 1134–1142.
- Crick, N. R., Murray-Close, D., & Woods, K. E. (2005). Borderline personality features in childhood: A short-term longitudinal study. *Development and Psychopathology, 17*, 1051–1070.
- Cullerton-Sen, C., Cassidy, A. R., Murray-Close, D., Cicchetti, D., Crick, N. R., & Rogosch, F. A. (2008). Childhood maltreatment and the development of relational and physical aggression: The importance of a gender-informed approach. *Child Development, 79*, 1736–1751.
- Cullerton-Sen, C., & Crick, N. R. (2005). Understanding the effects of physical and relational victimization: The utility of multiple perspectives in predicting social-emotional adjustment. *School Psychology Review, 34*, 147–160.
- Geiger, T., & Crick, N. R. (2001). A developmental psychopathology perspective on vulnerability to personality disorders. In R. E. Ingram & J. M. Price (Eds.), *Vulnerability to psychopathology: Risk across the lifespan* (pp. 55–102). New York: Guilford Press.
- Hecht, K. F., Cicchetti, D., Rogosch, F. A., & Crick, N. R. (2014). Borderline personality features in childhood: The role of subtype, developmental timing, and chronicity of child maltreatment. *Development and Psychopathology, 26*, 805–815 [this issue].
- Kawabata, Y., Crick, N. R., & Hamaguchi, Y. (2010). The role of culture in relational aggression: Associations with social-psychological adjustment problems in Japanese and US school-aged children. *International Journal of Behavioral Development, 34*, 354–362.
- Kawabata, Y., Tseng, W.-L., Murray-Close, D., & Crick, N. R. (2012). Developmental trajectories of Chinese children's relational and physical aggression: Associations with social-psychological adjustment problems. *Journal of Abnormal Child Psychology, 40*, 1087–1097.
- Leff, S. S., Crick, N. R., Angelucci, J., Haye, K., Jawad, A. F., Grossman, M., et al. (2006). Social cognition in context: Validating a cartoon-based attributional measure for urban girls. *Child Development, 77*, 1351–1358.
- Leff, S. S., Gullan, R. L., Paskewich, B. S., Abdul-Kabir, S., Jawad, A. F., Grossman, M., et al. (2009). An initial evaluation of a culturally adapted social problem-solving and relational aggression prevention program for urban African-American relationally aggressive girls. *Journal of Prevention and Intervention in the Community, 37*, 260–274.
- Murray-Close, D., & Crick, N. R. (2007). Gender differences in the association between cardiovascular reactivity and aggressive conduct. *International Journal of Psychophysiology, 65*, 103–113.
- Murray-Close, D., Han, G., Cicchetti, D., Crick, N. R., & Rogosch, F. A. (2008). Neuroendocrine regulation and aggression: The moderating roles of physical and relational aggression and child maltreatment. *Developmental Psychology, 44*, 1160–1176.
- Ostrov, J. M., & Godleski, S. A. (2010). Toward an integrated gender-linked model of aggression subtypes in early and middle childhood. *Psychological Review, 117*, 233–242.