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The development of coping across childhood and adolescence: An integrative review and critique of research

Melanie J. Zimmer-Gembeck¹ and Ellen A. Skinner²

Abstract

Despite consensus that development shapes every aspect of coping, studies of age differences in coping have proven difficult to integrate, primarily because they examine largely unselected age groups, and utilize overlapping coping categories. A developmental framework was used to organize 58 studies of coping involving over 250 age comparisons or correlations with age. The framework was based on (1) conceptualizations of coping as regulation to suggest ages at which coping should show developmental shifts (Skinner & Zimmer-Gembeck, 2009), and (2) notions of hierarchical families to clarify which coping categories should be distinguished at each age (Skinner, Edge, Altman, & Sherwood, 2003). Developmental patterns in coping (e.g., problem-solving, distraction, support-seeking, escape) were scrutinized with a focus on common age shifts. Two kinds of age trends were discerned, one reflecting increases in coping *capacities*, as seen in support-seeking (from reliance on adults to more self-reliance), problem-solving (from instrumental action to planful problem-solving), and distraction (adding cognitive to behavioural strategies); and one reflecting improvements in the *deployment* of different coping strategies according to which ones are most effective in dealing with specific kinds of stressors. Results were used to formulate guidelines for future research on the development of coping.

Keywords

adolescents, children, coping, emotion regulation, hierarchical families, self-regulation, stress, stress reactivity

Although the first systematic longitudinal study of coping from infancy to adolescence was initiated in 1953 (Murphy & Moriarty, 1976), the study of children's coping began in earnest in the 1980s with two seminal publications (Compas, 1987; Garmezy & Rutter, 1983). Since that time, many ways of coping have been identified, such as problem-solving, support-seeking, rumination, escape, and distraction, and their explicit study distinguishes research on coping from work on risk, resilience, and adversity more generally. A primary focus has been research examining the connections between different ways of coping and important outcomes during childhood and adolescence. Multiple reviews summarize these studies (Aldwin, 2007; Bridges, 2003; Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Frydenberg, 1997; Seiffge-Krenke, 1995; Wolchik & Sandler, 1997) and attest to the role of coping in academic and social functioning, adjustment to stressful events, internalizing and externalizing behaviour, well-being, competence, and resilience. In tandem, interventionists have tested programmes designed to support young people as they cope with stressful events (e.g., Sandler, Wolchik, MacKinnon, Ayers, & Roosa, 1997). The interplay of work on assessment, individual differences, and interventions has created fertile ground for theoretical and empirical growth.

There is, however, one area in which little empirical progress has been made over the last 20 years, and that is the study of the normative development of coping. Despite consensus that development shapes every aspect of coping, an integrated and interpretable body of research detailing how coping changes across childhood and adolescence has yet to emerge (Aldwin, 2007; Compas, 1998; Compas, Malcarne, & Banez, 1992; Coping Consortium, 1998, 2001; Skinner

& Edge, 1998; Skinner & Zimmer-Gembeck, 2007). Many studies examine how children and youth cope at particular ages, but few studies explicitly investigate the age differences and age changes in coping that take place within or across developmental periods.

A coherent body of developmental research on coping would be highly valuable for many reasons (Compas, 2009). A careful map of normative age-graded transitions in coping would allow the identification of healthy pathways through which children can acquire robust resources for dealing constructively with challenges, obstacles, failure, and loss. It would provide interventionists with a guide to the kinds of changes in coping they should target. It could answer important questions about measurement by specifying the profile of ways of coping that should be assessed at different ages. The description of age-graded shifts in how children and adolescents cope would provide a foundation for subsequent studies designed to uncover the underlying developments (in neurophysiological, cognitive, emotional, attentional, or social processes) that account for these shifts.

¹ Griffith University, Australia

² Portland State University, USA

Corresponding author:

Melanie J. Zimmer-Gembeck, Griffith University—Gold Coast Campus, School of Psychology, Griffith University QLD 4222, Australia.
Email: m.zimmer-gembeck@griffith.edu.au

The integration of studies examining age differences and changes would also allow work on coping to more vigorously contribute to other developmental research examining children's reactions to adversity and challenge. Studies of coping could add value to work on risk and resilience by suggesting a set of age-graded mechanisms through which risk could be exacerbated or ameliorated (Haggerty, Sherrod, Garnezy, & Rutter, 1994). Studies on the normative development of individual ways of coping, such as social problem-solving or help-seeking, could benefit from considering them as part of the development of a repertoire of coping strategies (Compas et al., 1992). A developmental description would also allow coping, which focuses largely on children and youth, to be integrated with the study of the constitutional underpinnings and social factors that shape infants' and young children's distress reactions and influence their attempts to ameliorate distress (Derryberry, Reed, & Pilkenton-Taylor, 2003; Eisenberg, Fabes, & Guthrie, 1997; Fox, Henderson, Marshall, Nichols, & Ghera, 2005).

Goals of the review: Integration and critique

The overarching goal of this paper is to contribute to a description of the normative development of coping by integrating and critiquing research on age differences and age changes in ways of coping during childhood and adolescence. In the 25 years since the field came into its own, more than 50 studies reporting such information have been published. Studies were located by searching electronic databases and reference lists, consulting previous reviews, and contacting key authors in the area of children's stress and coping. In all, 58 studies incorporating more than 250 age comparisons were identified, more than twice as many studies as included in previous comprehensive reviews. Appendix A provides a summary description of the methods used in each study (see web resources for Appendix A and for references to all studies included in the review¹).

The major contribution of this paper resides in our attempt to overcome the four obstacles to integrating these studies noted by previous reviewers (Aldwin, 2007; Band, 1995; Bridges, 2003; Compas et al., 2001; Decker, 2006; Eisenberg et al., 1997; Fields & Prinz, 1997; Holt, Hoar, & Fraser, 2005). First, studies incorporate a wide variety of age groups and gaps, ranging from two-year gaps (e.g., ages 12–14) to 32-year gaps (e.g., ages 14–46). However, without an understanding of the ages at which developmental shifts are expected, it is difficult to know where to look (or, more precisely, *when* to look) for age differences and changes, or how to interpret the *lack* of such differences or changes. Second, measures in these studies tap a wide range of differing and partially overlapping coping categories, including many assessments that combine multiple coping strategies. Without a common set of coping categories, it is difficult to determine which findings to compare or aggregate.

Third, the stressors with which children and adolescents are coping differ widely across studies, ranging, for example, from daily difficulties with peers, family, and school, to uncontrollable medical events and parental cancer, to unspecified self-identified stressors, hypothetical issues, multiple problems, or coping in general. If the nature and domain of the problem shape how children and adolescents cope (e.g., Brown, O'Keeffe, Sanders, & Baker, 1986; Compas, Malcarne, & Fondacaro, 1988; Irion & Blanchard-Fields, 1987; Stern & Zevon, 1990), it would be important to differentiate studies based on the stressors they target. Fourth, studies rely on a variety of

methods to capture coping, including observations, open-ended interviews, written responses, questionnaires, and checklists. If age differences are more easily detected with some of these methods than others (e.g., in children's self-reports compared to observations; Altshuler, Genevro, Ruble, & Bornstein, 1995), it would be important, when integrating studies, to consider their measurement strategies.

Developmental framework

In order to tackle these problems, we relied on a framework grounded in recent theoretical and methodological advances in work on the development of coping (Compas, 2009; Coping Consortium, 1998, 2001; Eisenberg, Valiente, & Sulik, 2009; Skinner & Zimmer-Gembeck, 2007, 2009). This emerging multi-level framework views coping as a set of adaptive processes that can diminish or magnify the effects of risk or adversity, more generally, on the development of competence or dysfunction. New conceptualizations of coping as "regulation under stress" provide a bridge to theories and research about regulation and its typical development (Compas et al., 2001; Compas, Connor, Osowiecki, & Welch, 1997; Rossman, 1992; Skinner, 1999; see Eisenberg et al., 1997 for an extended discussion). Although controversies about the meaning of both regulation (e.g., Cole, Martin, & Dennis, 2004) and coping (Compas et al., 2001) abound, new conceptualizations emphasize their common conceptual ground: both are concerned with situations in which reflexive or automatic responses do not serve and during which strong emotions or impulses may be generated; they often involve efforts to deal with internal and external demands; they imply prolonged interactions or episodes which are shaped by task characteristics and the participation of social partners; the processes individuals use to manage ongoing interactions can be adaptive or maladaptive.

We used the framework to guide our integration of studies of age-related differences and changes in coping. First, the bridge to regulation helped identify likely landmarks in the development of coping.² Research on regulation is spread over many relatively independent areas, focusing on the regulation of emotion, behaviour, and attention, as well as on topics that are not explicitly labelled as regulation but are commonly understood to involve regulatory processes, such as delay of gratification, will-power, social and cognitive problem-solving, and help-seeking. Within each of these areas, the majority of research focuses on individual differences. However, a few strands of research directly examine age-graded developmental changes in regulatory processes (Bridges & Grolnick, 1995; Bronson, 2000; Campos, Frankel, & Camras, 2004; Deci & Ryan, 1985; Eisenberg & Fabes, 1992; Holodynski & Friedlmeier, 2006; Kopp, 1982, 1989, 2003; Mischel & Mischel, 1983; Ryan & Connell, 1989; Spivak & Shure, 1982; Sroufe, 1996).

Stated briefly (see Skinner & Zimmer-Gembeck, 2007, 2009, for more details), this research, combined with theories and studies of children's neurological, emotional, memory, cognitive, language, and social development, allowed us to identify particular ages when coping processes are likely to undergo significant qualitative and quantitative shifts. Although there may be other transitions, the most conclusive evidence points to transitions during the following age periods: (1) infancy to toddlerhood (about age 2); (2) ages 5 to 7; (3) late childhood to early adolescence (about ages 10 to 12); (4) early to middle adolescence (about ages 14 to 16); and (5) middle to late adolescence (about ages 18 to 22). Each of these age periods

Table 1. Links between 12 higher-order families of coping and adaptive processes

Family of coping	Family function in adaptive process
1. Problem-solving Strategizing Instrumental action Planning	Adjust actions to be effective
2. Information-seeking Reading Observation Asking others	Find additional contingencies
3. Helplessness Confusion Cognitive interference Cognitive exhaustion	Find limits of actions
4. Escape Behavioural avoidance Mental withdrawal Denial Wishful thinking	Escape noncontingent environment
5. Self-reliance Emotion regulation Behaviour regulation Emotional expression Emotion approach	Protect available social resources
6. Support-seeking Contact-seeking Comfort-seeking Instrumental aid Social referencing	Use available social resources
7. Delegation Maladaptive help-seeking Complaining Whining Self-pity	Find limits of resources
8. Social isolation Social withdrawal Concealment Avoiding others	Withdraw from unsupportive context
9. Accommodation Distraction Cognitive restructuring Minimization Acceptance	Flexibly adjust preferences to options
10. Negotiation Bargaining Persuasion Priority-setting	Find new options
11. Submission Rumination Rigid perseveration Intrusive thoughts	Give up preferences
12. Opposition Other-blame Projection Aggression	Remove constraints

Note. Adapted from Skinner et al., 2003.

entails transitions in cognitive and emotional development as well as significant changes in regulatory capacities and the social environment, all of which play important roles in processes of stress and coping. Hence, in our review, we paid special attention to comparisons involving these age groups.

Families of coping

The second way we used the developmental framework was to organize the variety of ways of coping and coping combinations measured in studies. Previous theoretical and empirical analyses have converged on 12 higher-order families of coping (Skinner et al., 2003; Skinner & Zimmer-Gembeck, 2007). Each family represents a functionally homogeneous set of ways of coping that serves the same adaptive functions. For example, problem-solving (or problem-focused coping) consists of ways of coping aimed at changing the stressful situation to bring it in line with the individual's desires and motives, and so would include instrumental actions, effort exertion, experimentation, problem-solving, planning, and so on. The family of support-seeking would include seeking contact, comfort, advice or aid from parents, teachers, other adults, or peers. The 12 families are depicted in Table 1.

All the ways of coping in a family serve the same adaptive functions, but the forms in which particular adaptive functions can be expressed are decisively constrained by developmental capacities. For example, escape can be expressed by leaving the scene only after a child is able to locomote, and information-seeking can be expressed in the form of questions only after a child can talk. However, the identification of the overarching adaptive functions served by particular families makes it possible to deduce or discover the ways in which these functions can be fulfilled using the capacities that are available at different developmental levels. For example, gaze aversion or falling asleep may be early forms of escape; and social referencing or object exploration may be early forms of information seeking. Despite apparent differences in expression, these ways of coping can all be considered members of the same family because they serve the same set of adaptive functions. Examples of developmentally different members of some coping families are presented in Table 2 (see also Holodynski & Friedlmeier, 2006, Table 3.3). Hence, in our review, we distinguished developmentally-graded ways of coping from each other and compared them between ages.

Organizing studies of age differences and changes in coping

The developmental framework suggested several avenues for solving the problems identified in previous reviews, which we used as strategies to help make sense of the patterns of age differences and age changes found in studies (see Table 3). First, we coded each of the categories used in a study into the lower-order ways of coping suggested by the hierarchical families of coping. Table 4 (see web resources) summarizes definitions of coping families used to categorize coping strategies. Second, we arranged the findings within each coping family as a function of age, in order to determine whether differences and changes were more prominent during the developmental windows suggested by theories of regulation. Third, we focused on "pure" subscales, that is, ones that did not combine items from different families, in order to see whether they produced clearer developmental trends.

Fourth, we attended to the different methodologies used to assess coping, such as open-ended interviews, observations, or questionnaires. Fifth, we organized studies according to the domains of stress. Finally, we considered more than increases or decreases (or sometimes curvilinear changes) in coping with age.

Table 2. Examples of developmentally-graded members of coping families

Age period	Coping family and ways of coping				
	Problem-solving	Comforting	Distraction	Escape	Information-seeking
Infancy (birth–18 months)	Effort Repetition Practice	Appeals to caregiver Proximity seeking Physical self-soothing (e.g., sucking, stroking)	Gaze at attractive objects Distracted by caregiver	Gaze aversion Signal to caregiver	Social referencing Observation
Preschool (ages 2–5)	Instrumental actions Request instrumental aid	Self-comfort with behaviours (e.g., get blanket) Seeks comfort	Behavioural distraction (doing something else)	Leave situation (behavioural withdrawal)	Ask for information
Middle childhood (ages 6–9)	Strategizing Alternative mental means Repair	Self-comfort through verbal reassurance	Cognitive distraction (thinking about something else)	Mental withdrawal	Learn from others' experiences Social comparison
Early adolescence (ages 10–14)	Planning Self-regulated learning (studying, rehearsal)	Think about positive future situations	Plan distracting activities	Avoid potentially negative situation	Independent pursuit of information (e.g., reading)
Middle and late adoles- cence (ages 14–22)	Prevention Coordination of mul- tiple activities	Larger perspective Downward social comparison	Meditation, guided relaxation	Decide which situations to participate in	Integration of information from multiple sources

To explore whether coping behaviours change in their organization with age, we extracted, from the subset of studies that have done such analyses, information about age-related changes in correlations among coping behaviours. We did not report these latter findings in detail, but used them to make more general conclusions about qualitative age-related shifts in coping.

Findings about developmentally-graded ways of coping

Despite the fact that there are hundreds of potential coping responses, children and adolescents commonly relied on ways of coping drawn from four families, namely, problem-solving, distraction, support-seeking, and escape. In addition, studies revealed high use of two other families, accommodation and self-reliance, which depended on age and the nature of the stressor. Age trends in the other six families (helplessness, delegation, social isolation, negotiation, submission, and opposition)

were more difficult to gauge, because they were studied less often, used less frequently, or typically combined with other dominant ways of coping.

Findings for the four most common strategies are described in detail later and are summarized in Tables 5–8 and Table 9 (see web resources) provides the details for studies that focused on accommodation as a coping strategy. In each table, column 1 labels each study, using abbreviations to conserve space (e.g., PS1 for Problem-solving study 1). Column 2 lists the study, column 3 shows the coping category used in the study as well as the domain of the stressor (e.g., medical, interpersonal, general), and the source of the data (e.g., interview, questionnaire, observation). Column 4 lists our coping family categorization, and denotes measures that focused only on the specific family. The remaining columns summarize measures, ages studied, and results related to age. As expected, coping did differ by age,³ and the strategies suggested by the developmental framework were useful in ordering and integrating findings. (Appendix B [see web resources] contains the following sections with detailed citations.)

Table 3. Strategies for organizing studies of age differences and age changes in ways of coping

1. *Hierarchical families of coping.* Code subscales as to ways of coping included in hierarchical families.
2. *Developmental shifts.* Array studies along an axis of chronological age, looking for differences or changes during ages at which developmental shifts are hypothesized.
3. *Homogeneity of subscales.* Identify relatively “pure” subscales that do not mix items or codes across families and examine them for homogeneous developmental trends.
4. *Method of assessment.* Group studies according to the method used to assess coping (open-ended interviews, observations, or questionnaires) to determine whether similar methods lead to more similar developmental trends.
5. *Target stressor.* Group studies according to the stressor in response to which coping was assessed (self-identified, domain-specific, or wide variety of stressors) to determine whether similar stressors lead to more similar developmental trends.
6. *Pattern of findings.* Group studies according to whether they find increases, decreases, or no differences in a family of coping, and examine whether the groups of studies differ according to age range, homogeneity of subscale, method of assessment, or nature of stressor.

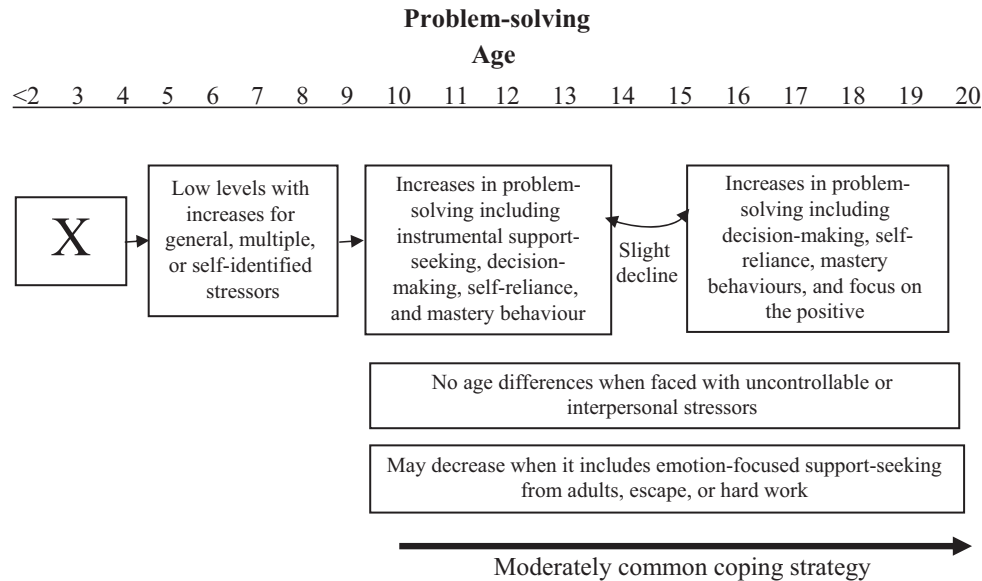


Figure 1. Summary of the developmental progression of problem-solving from early childhood to early adulthood.
 Note. X indicates little or no information.

Problem-solving

As shown in Table 5 (see web resources), problem-solving was examined in 41 studies involving 59 age comparisons or correlations with age. Overall, the pattern of findings suggested increases with age: 25 comparisons revealed increases (highlighted in green in Table 5), 15 reported decreases (highlighted in red), and 19 found no differences or associations (highlighted in yellow). At the same time, a closer analysis using strategies from the developmental framework brought additional clarity to this pattern. It was especially helpful to organize studies according to scale content, age groups included in the comparisons, and the nature of the stressor. Figure 1 provides a graphical summary of the findings.

“Pure” problem-solving measures. Studies were examined that relied on measures consisting only of items from the problem-solving family (i.e., instrumental action, cognitive problem-solving, planning). When the 31 comparisons from these studies (denoted with + in Table 5) were tallied, 15 showed increases, five found decreases, and 11 reported no differences. The 15 comparisons that documented increases utilized a variety of methods (i.e., questionnaire, interview, written responses) and found increases during middle childhood, in early, middle and late adolescence, and in young adulthood.

Next, the stressor domain was examined. Increases were found in studies of coping in general or with multiple and/or self-identified stressors. In contrast, eight of the 16 comparisons that found no differences or decreases examined the use of problem-solving in the interpersonal domain or with uncontrollable problems (e.g., parental cancer) (no differences: interpersonal, leukemia, parent cancer, parent conflict, home, interpersonal; decrease: friend conflict, peer). We also considered the age groups and gaps used in the studies relying on “pure” measures. Five of the comparisons that found no differences or decreases included age gaps across multiple developmental periods (e.g., ages 5–15, 6–32, 8–14, 13–20).

Problem-solving and support-seeking. In organizing findings from scales that combined problem-solving with ways of coping from other families, we used the coding system to examine whether age differences depended on the specific ways of coping that were included. The most common combination was adding support-seeking to problem-solving, referred to as “active” or “approach” coping. Of the 12 age comparisons using this combination (highlighted with ^a in Table 5), two showed increases, six showed decreases, and four showed no association. However, patterns were more discernible when the *nature* of the support-seeking and the nature of the stressor were considered. Both of the studies that found increases included items that tapped problem-focused support-seeking, such as seeking instrumental help or advice, and examined differences from early to middle childhood (between ages 5–11, 6–8). In contrast, eight of the 10 comparisons that showed decreases or no differences included measures that tapped the use of emotion-focused support-seeking (e.g., comfort seeking) when coping with distress or pain, or dealing with uncontrollable stressors (e.g., waiting for surgery) or interpersonal problems (e.g., parental grounding).

Problem-solving with coping from other families. Eight comparisons combined problem-solving with other cognitive strategies such as distraction or focus on the positive (^c in Table 5), and all found age increases (e.g., ages 6–12, 10–14, 13–18, 16–19). Two comparisons combined problem-solving with emotion management (^e in Table 5), and both found no differences (ages 13–18). Two comparisons combined problem-solving with ambition and commitment (referred to as working hard; ^h in Table 5) and both found decreases in adolescence (ages 12–16 and 12–17). Two comparisons combined problem-solving with escape (referred to as Primary Control coping; ^p in Table 5) and both found decreases (from 8–16).

Summary. Overall, differentiating studies by carefully coding coping families provided a clearer picture of age trends. Increases in problem-solving coping were consistently found when measures

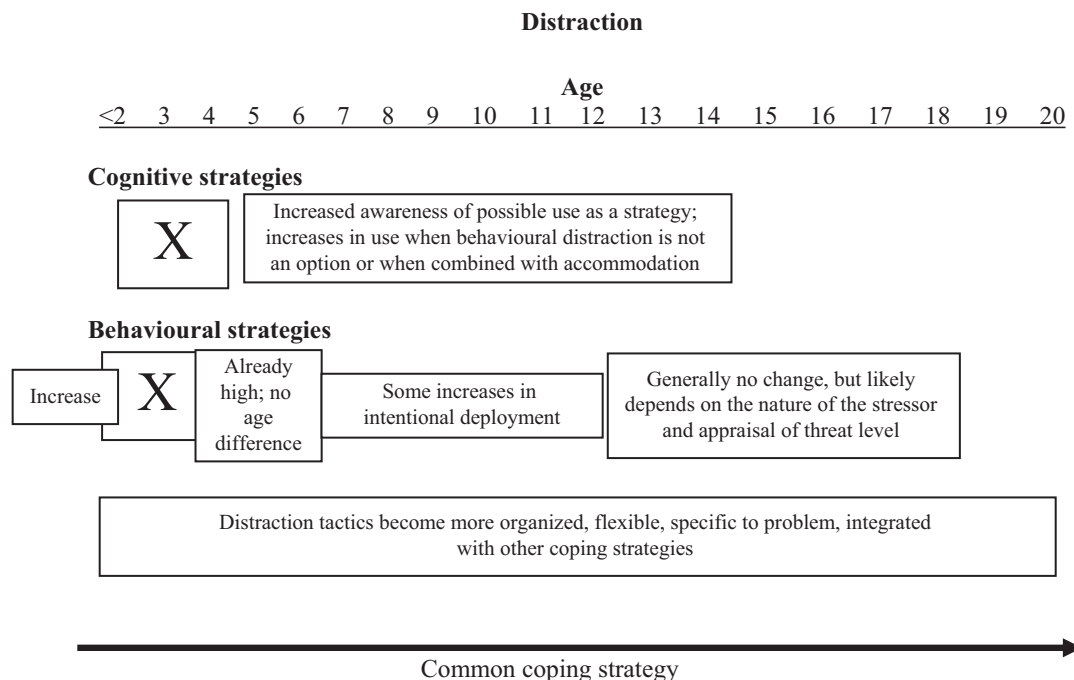


Figure 2. Summary of the developmental progression of distraction from early childhood to early adulthood.
 Note. X indicates little or no information.

focused exclusively on problem-solving, examined smaller age gaps (less than five years), and considered problem-solving as an all-purpose strategy for dealing with multiple, general, or self-identified stressors. Increases in problem-solving were also found for scales that combined problem-solving with other families when the additional items marked families appropriate to the developmental level: increases were found during childhood and early adolescence for scales that added items tapping *instrumental* support-seeking, and increases were found during adolescence for scales that added items tapping other cognitive strategies, such as distraction or focus on the positive. In general, few differences in problem-solving coping were found across age gaps that encompassed multiple developmental periods or that focused on problem-solving as a strategy for dealing with interpersonal or uncontrollable stressors. Decreases were often found when problem-solving measures added items from families that are likely decreasing across childhood and adolescence, such as escape or the use of emotion-focused support-seeking for dealing with distress.

Distraction

Forty-three studies included measures of distraction as a way of coping. Regarding age differences prior to preschool age, there were increases in behavioural distraction in very young children. Focusing on children in their first year (Braungart-Rieker & Stifter, 1996; Mangelsdorf, Shapiro, & Marzolf, 1995), studies revealed that escape via gaze aversion declined with age, while distraction by turning to other objects increased between 6 months and 12 months of age, as would be expected given infants' increasing abilities to locomote and coordinate behaviours.

Findings for distraction from 41 studies focusing on children aged 4 and older are summarized in Table 6 (see web resources), and included 64 age comparisons or correlations. As a whole,

findings suggested increases or stability in use of distraction coping: 25 comparisons revealed increases (green in Table 6), and 25 found no differences or associations (yellow in Table 6) whereas 14 reported decreases (red in Table 6). However, examining whether measures focused only on distraction or combined distraction with ways of coping from other families revealed additional order. Figure 2 provides a graphical summary of the overall findings.

"Pure" distraction measures

In terms of scale content, 27 comparisons relied on measures focusing purely on distraction (denoted with + in Table 6), and all but four showed increases (11 comparisons) or found no differences (12 comparisons). Studies were further distinguished by the means of distraction: behavioural, cognitive, or both. Fourteen comparisons focused only on *behavioural* distraction (^b in Table 6). Of these, five revealed increases starting at the youngest ages and continuing across adolescence (e.g., ages 4–10, 12–18). The other eight showed no difference or association with age across approximately the same age ranges. However, the basis for stability could be identified in five comparisons because these studies also reported mean levels. All five comparisons found no age differences because behavioural distraction was already the most commonly used strategy starting at the earliest age considered (age 5) and remained high until the oldest age (age 18).

Four of the 27 comparisons focused on only *cognitive* distraction (^c in Table 6) and all four considered uncontrollable medical stressors. Three comparisons found increases during childhood (ages 5–11, 5–11, 8–10) and one found no age differences. Increases were found in comparisons of cognitive distraction that asked about *hypothetically* possible ways of coping or in situations in which behavioural distraction was not an option (i.e., during a

dental examination). No differences were found in a study focusing on cognitive distraction in a situation where behavioural distraction was possible (i.e., waiting for surgery). In this situation, children rarely reported using cognitive distraction, and this held true across the age range examined (ages 5–11).

Eight of the 27 comparisons involved measures that mixed cognitive and behavioural distraction in their coding or questionnaires or did not specify the kind of distraction (^m in Table 6). Three of these comparisons found no age differences, two found increases, and three found decreases. No differences were found during adolescence (ages 9–14, 12–17, 12–18) when distraction was among the most common strategies used to deal with uncontrollable stressors (e.g., being grounded by parents) or in general. Increases were found between ages 6 and 18 when dealing with leukemia or when requested to write down all the strategies used for dealing with a self-identified stressor and a set of uncontrollable stressors (getting a shot at the dentist, giving a school report). All three studies that found decreases examined coping with interpersonal or self-identified stressors (usually interpersonal) from ages 8–14.

One study (D5) shed light on the use of behavioural and cognitive distraction as ways of coping with uncontrollable stressors (in this case waiting for paediatric surgery). In semi-structured interviews, children aged 5 to 11 named things a hypothetical child could do, observations were conducted in the waiting room, and children's retrospective reports about what they actually did were collected one week later. Observations showed behavioural distraction to be the most common coping strategy across all ages. In the hypothetical scenarios, children named behavioural distraction frequently and this did not differ across age; older children were more likely to name cognitive distraction as a *possible* strategy. In their retrospective accounts of what they actually did, however, children rarely reported using cognitive distraction as a strategy at any age. At the same time, older children were more likely to report using behavioural distraction than younger children. It may be that although younger children actually use behavioural distraction, they only begin to intentionally deploy it as a strategy somewhat later during middle childhood.

In terms of the domain of the stressor, studies that examined only distraction tended to focus on using it to cope with distress, uncontrollable stressors, or serious problems. However, when no associations with age were found, comparisons were more likely to examine coping in general or with multiple different kinds of stressors. In terms of the method of data collection (i.e., observation, questionnaire), three of the four studies that found increases in cognitive distraction used open-ended formats in which students volunteered strategies (i.e., interview or open-ended written responses). Comparisons involving questionnaires were more likely to find no differences or decreases.

Distraction as accommodation

In organizing findings for scales that combined distraction with other ways of coping, we used the coding system to examine whether age differences depended on the specific ways of coping that were added. Twelve comparisons combined distraction with other ways of coping from the accommodation family, such as focus on the positive (^a in Table 6). Six found increases and

six no differences. In two of these comparisons, focus on the positive was combined with *behavioural* distraction and showed no difference across adolescence (ages 13–20, 14–18). In five comparisons, focus on the positive was combined with *cognitive* distraction: four found increases across adolescence (ages 10–14, 12–16, 12–18, 12–18), and one found no differences at earlier ages (ages 8–11).

Distraction as emotion management

Nine comparisons considered distraction as part of emotion management, combining it with calming and relaxation, instrumental action, self-reliance, comfort-seeking, help-seeking, or self-soothing (^e in Table 6). Six of these comparisons showed increases, one a decrease, and three no differences. All of the comparisons that showed increases included *cognitive* distraction whereas all of the comparisons that showed no differences combined these strategies only with *behavioural* distraction. One study explicitly stated that emotion-focused strategies for dealing with a parent's cancer moved from behavioural to cognitive over the age range studied (D12: ages 6–32).

Distraction as avoidance

Fifteen comparisons considered distraction as part of avoidance, combining it with behavioural or cognitive avoidance, or escape and social isolation (^v in Table 6). Of these, two found increases, nine decreases, and four no differences. In both of the comparisons that found increases, distraction was combined with avoidance and described as a strategy used to avoid problems at younger ages (ages 4–12, 7–10). Five other comparisons that combined distraction with avoidance found decreases and three found no differences at slightly older ages (e.g., ages 7–17, 16–20). None of the comparisons that combined distraction with escape found increases; four found decreases and one no age differences.

Summary

A focus on comparisons that included “pure” measures of distraction revealed that behavioural distraction was a way of coping commonly used to deal with uncontrollable events and to manage emotions starting at the youngest ages studied, and it remained an important general purpose strategy across childhood and adolescence. Behavioural distraction was also likely to show increases in use across this age range in situations in which it was not already high, perhaps reflecting more intentional deployment as children reached late childhood and early adolescence. Children also showed increasing *awareness* of cognitive distraction as a possible strategy, although they only used it more frequently in stressful situations where behavioural distraction was not an option (e.g., during a dental procedure). Studies were more likely to find increases when children were asked open-ended questions about the strategies they use; questionnaires were more likely to show no differences.

Comparisons involving measures that combined distraction with other *accommodative* strategies (such as focus on the positive) generally found age differences commensurate with the kind of distraction that was included: stability if the distraction was *behavioural* or increases if the distraction was *cognitive*. Studies that combined distraction with other forms of *emotion management* (such as

comfort-seeking or instrumental action) also found age differences corresponding to the kind of distraction included: studies that showed no differences combined these strategies only with *behavioural* distraction, whereas all of the studies that showed increases included *cognitive* distraction.

The most heterogeneous pattern of findings came from studies that considered distraction as part of “avoidance” coping. Increases were found in studies that considered avoidance an adaptive prevention strategy and assessed it with teacher-ratings or interviews; other comparisons also revealed decreases and no differences. The only comparisons in which decreases with age were consistently found were ones in which distraction was combined with escape. One factor likely contributing to this heterogeneous pattern has been uncovered in subsequent studies: confirmatory structural analyses have shown that “distraction” is not part of escape or avoidance coping (e.g., Ayers, Sandler, West, & Roosa, 1996; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000).

Support-seeking

Findings from 48 studies utilizing measures with some support-seeking content showed that it was common, multidimensional, and complex. In particular, conclusions about age patterns depended on the span of ages under investigation as well as the characteristics of the supportive presence and the nature of the support sought. Additionally, age-related increases in support-seeking were more likely to be found when specific stress domains were identified.

In two studies of infants and toddlers, support-seeking was a frequent coping strategy, as would be expected. Behaviours included reliance on attachment figures to regulate responses to stressful events and using directed vocalization to gain assistance (e.g., get Mom to do something). These strategies increased with age and became more direct between about 5 and 18 months of age (Braungart-Rieker & Stifter, 1996; Mangelsdorf et al., 1995). As described by Barrett and Campos (1991), sometime early in the second half of the first year of life, infants develop the ability to direct their facial responses in ways that elicit support or guide the instrumental actions of others. Other adaptive strategies for support-seeking also emerge around this time, such as seeking eye contact with caregivers when soothing or other forms of assistance are desired (Kopp, 1989).

Table 7 (see web resources) summarizes findings for support-seeking from 46 studies focusing on children aged 4 and older, and includes 80 age comparisons or correlations. Taken together, findings suggested decreases or stability in use of support-seeking coping with age: 37 comparisons revealed no differences or associations (yellow in Table 7) and 23 found decreases (red in Table 7), whereas 20 reported increases (green in Table 7). However, more order was detected, particularly after considering developmental levels included in the comparisons and whether measures focused only on support-seeking or combined support-seeking with other families. Findings are graphically depicted in Figure 3.

“Pure” support-seeking measures

In terms of scale content, 41 comparisons (denoted with + in Table 7) were identified that relied on measures focusing *only* on support-seeking; the majority of these (38 comparisons) mixed help-seeking and comfort-seeking in their measures. Of these, 23 showed no

differences by age, 11 found decreases, and seven found increases, but the pattern became clearer when developmental level was considered.

Ten comparisons focused on *middle childhood* (ages 7 to 12): six of these revealed decreases, three found no differences, and only one found an increase. Decreases were found all across this age range (from 5–8 to 10–12) and across stressors involving achievement, peers, distress, self-identified issues, and uncontrollable problems. Ten comparisons spanned from *childhood to adolescence* (e.g., 5–15, 7–16). All but one found no age differences.

Fourteen comparisons included *adolescents* (ages 12 to 24). Of these, nine found no differences, and five found increases. No differences were found all across this age range (e.g., 12–16, 16–20) and across a range of stressors, including interpersonal, school, self-identified, multiple different stressors, and in general. The five comparisons that found increases were also across the entire age range (e.g., 11–13, 16–20) and across different stressors (peer; general; self-identified).

Sources of support

One of our expectations was that children would increasingly turn to peers as sources of support across later childhood and early adolescence, especially for dealing with issues in which peers are perceived to have expertise, such as homework and social problems. However, few of the measures distinguished the source of social support. Most combined support from parents and other family members with support from friends, and sometimes from teachers or other adults; often the referent was “someone,” as in “I talked to someone about it.” One study that did distinguish peers from adults as sources of support (S5) found that younger children (ages 5–6) preferred adults to peers, but by primary school (ages 7–8), children began to prefer peers to adults. However, by the end of childhood (ages 10–11), children began to prefer adults to peers in dealing with uncontrollable stressors (such as medical situations). Two additional comparisons that explicitly targeted friends as sources of support found no association with age across ages 12 to 18. However, the specific stressor was not distinguished; these two studies examined coping in general.

In one notable study (S39), approach coping in the form of talking with adults for guidance to solve a problem was positively correlated with age (12 to 18 years). In an additional study (S36), support-seeking from family and friends was combined with information-seeking from professionals; this was a common strategy during adolescence and showed linear increases between ages 12 to 15 as well as ages 16 to 19. An additional study that examined seeking guidance from professionals (without combining it with general support-seeking, S40c) found that this strategy was not very common during adolescence, but increased in use from age 14 to 16 (S40c2). Taken together, these comparisons suggest that young people may continue to seek help and information from adults, and this might even increase with age, whereas emotional support-seeking from adults may decline as emotional self-regulation and emotional support-seeking from peers increase.

Support-seeking as part of active coping

Support-seeking was combined with ways of coping from several other families. The most common was to include support-seeking with instrumental action or problem-solving, often referred to as

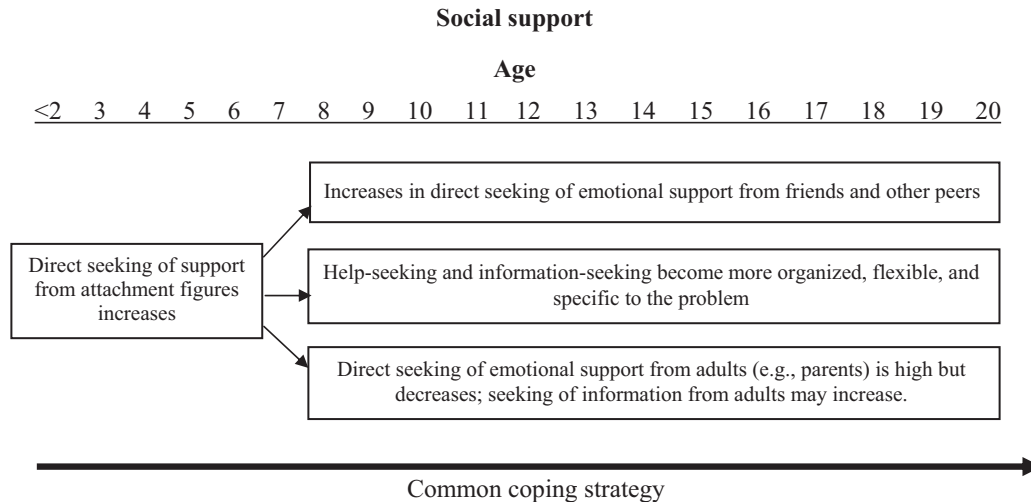


Figure 3. Summary of the developmental progression of support-seeking from early childhood to early adulthood.

“approach” or “active” coping (see section on problem-solving and support-seeking). Of 11 comparisons using this combination (^a in Table 7), two found increases, six found decreases, and three found no differences. Increases were found in combinations that were labelled as “adaptive approach” or “direct problem-solving,” suggesting that problem-solving predominated. All six of the decreases focused on using a combination of support-seeking and problem-solving to cope with distress, pain, cancer, or self-identified, mostly interpersonal, problems.

Support-seeking as part of emotion management

In 11 comparisons, support-seeking was combined with other constructive strategies for emotion management, such as problem-solving and negotiation or distraction (^c in Table 7). Six of these studies found increases from childhood to adolescence (e.g., ages 6–12, 13–18) and five found no differences across the same age range.

Support-seeking as part of emotion-focused coping

In six comparisons, support-seeking, usually comfort-seeking, was combined with other strategies used to deal with distress, such as escape and social isolation (^p in Table 7). Three of these comparisons found decreases across adolescence (ages 8–16) or larger age ranges (ages 14–46), whereas three comparisons found no differences across approximately the same ages (8–18, 10–15, 14–18). No comparisons found increases.

Summary

A focus on comparisons that included “pure” measures of support-seeking, which typically combined help- and comfort-seeking, revealed that, as would be expected, this was the most frequently used strategy for coping with problems and distress for young children. Although support-seeking remained a common coping strategy, its use decreased during childhood (ages 7–12), and then levelled off during adolescence. A recent study of utilization of attachment figures in middle childhood produced a similar pattern of findings (Kerns, Tomich, & Kim, 2006): although children in 3rd and 6th grades indicated that they would typically

turn to parents when sick, scared, or sad (85–98% of the time), the 6th-graders (compared to 3rd-graders) reported lower levels of reliance on their mothers and fathers in times of stress.

There were some indications that the preferred source of support shifted from adults to peers starting in late childhood and early adolescence, even though adolescents continued to rely on adults for guidance and to deal with uncontrollable stressors. Another recent study provides additional insight into sources of support (Crystal, Kakinuma, DeBell, Azuma, & Miyashita, 2008). Using an open-ended format to ask children in grades 6, 8, and 10 whom they rely on to help them with certain tasks (e.g., cheering them up when they are upset, helping fix a problem, homework), researchers distinguished among self, family, and peers, ranging from 0 (not mentioned as a source of support) to 1 (mentioned at least once). Although youth most frequently identified family at all ages, significant grade differences were found for each source of support. Compared to younger children, adolescents relied less on their family members ($M_s = .78, .65, .56$, for grades 6, 8, and 10, respectively), and more on themselves ($M_s = .13, .17, .21$) and their peers ($M_s = .13, .20, .29$).

Distinguishing ways of coping combined with support-seeking revealed some coherence in the pattern of findings. When support-seeking was combined with adaptive problem-solving, this combination showed increases during the ages when problem-solving is increasing (ages 5–11), but decreases predominated from ages 7 to 14 when this combination was aimed at coping with interpersonal problems or with uncontrollable stressors, pain, or distress, perhaps reflecting the fact that these latter stressors were found to be increasingly dealt with using distraction across this age range. Increases or no differences were found from childhood to adolescence when support-seeking was combined with other adaptive strategies of “emotion management” (such as distraction or negotiation). However, comparisons involving “emotion-focused coping” which combined support-seeking with escape, venting, or emotion suppression, revealed lower levels with increasing age or no differences across the same age range.

Escape

Findings for escape from 37 studies involving 64 age comparisons or correlations with age are summarized in Table 8 (see web

resources). Findings suggested a pattern of no differences or lower levels of escape coping with increasing age: 32 comparisons found no differences (yellow in Table 8) and 22 revealed decreases (red in Table 8), whereas only 10 reported increases (green in Table 8). At the same time, a closer examination of the findings, based on the criteria from the developmental framework, suggested additional order. It was useful to consider the content of scales, the age groups included in the comparisons, and the nature of the stressor.

“Pure” escape measures

Only 22 comparisons relied on measures including only the escape family (i.e., attempts to leave the distressing situation or to avoid direct action to resolve a problem, denoted with + in Table 8). These comparisons suggested no differences with age (13 comparisons) or a decrease (six comparisons); only three comparisons showed increases. Most studies focused on cognitive escape (e.g., wishful thinking, minimization, denial; eight comparisons,^c in Table 8) or a combination of behavioural and cognitive (or unspecified modes) escape (eight comparisons;^m in Table 8). Six comparisons focused exclusively on behavioural escape (^b in Table 8); five of these examined young children (e.g., ages 3–5, 6–8), three with observations and two with maternal ratings.

In general, studies reporting mean levels suggested that, on the one hand, escape is the most common of the maladaptive coping strategies (compared to, for example, opposition, social isolation, or catastrophizing), while on the other hand (compared to more adaptive strategies such as problem-solving, distraction, or support-seeking), escape is not a very common way of coping in childhood or adolescence. One possible developmental period when escape seems to be more common was during early childhood (ages 3–5, 6–8), when behavioural escape or avoidance was frequently used in response to one’s own distress or to peer provocation.

In 11 of the 22 comparisons using “pure” measures of escape, there was an overall pattern of low levels of use and no age differences: during early childhood (ages 4–6, 5–11, 6–8), middle childhood (ages 8–11, 8–14, 9–12), from childhood to adolescence (ages 7–18, 9–15, 10–13, 10–14), and during adolescence (ages 13–20). Comparisons that found decreases in escape were concentrated during late childhood (ages 7–10, 8–11, 9–10, 9–14) and applied to dealing with social stressors or one’s own distress. The few comparisons showing increases in escape were found during early adolescence (ages 9–15, 10–13) in three studies that included cognitive escape (e.g., “I tell myself it doesn’t matter”), although overall usage still remained low.

Escape as part of maladaptive coping

Nineteen comparisons combined escape coping with maladaptive coping from other families (e.g., aggression, isolation, helplessness;^l in Table 8). The pattern of age-related decreases for these comparisons was more pronounced than for those comparisons focusing only on more “pure” escape: eight comparisons showed decreases, eight found no differences, and three showed increases. Again, usage was generally low, except for behavioural indicators observed in one study of young children in uncontrollable situations.

Age-related declines in maladaptive coping combined with escape were concentrated in childhood, starting earlier than declines found with measures tapping only escape (e.g., ages 4–6,

5–11, 8–18). Comparisons finding no age differences were distributed across early childhood (ages 4–10), childhood (ages 5–11), from childhood to adolescence (ages 7–18, 10–14), and in adolescence (ages 13–18, 14–18). The four comparisons showing increases in maladaptive coping were found during early adolescence (ages 10–14, 10–15, 12–15, 12–15), notably in the academic domain. Four comparisons combined escape with substance use as well as with other maladaptive forms of coping. One of these comparisons found a longitudinal increase in early adolescence (ages 12–15), two comparisons showed decreases (ages 12–17, 16–19), and one found no differences (ages 14–18).

Escape combined with distraction

Measures that combined escape with distraction as a form of “avoidance” coping were used in 23 comparisons (^d in Table 8). Comparisons utilizing this combination were the ones most likely to show increases (six comparisons), although this was still less common than finding decreases in escape (11 comparisons) or no differences (six comparisons). Some of the increases were found in the same domains in which we found increasing use of distraction (e.g., dealing with distress and uncontrollable stressors), although three other comparisons involving distress showed no differences and one showed decreases.

Decreases in combinations of escape and distraction were concentrated during the adolescent transition (ages 5–8 vs. 12–15; 6–12; 8–14). However, comparisons that found no differences also examined adolescents of the same age (6–12; 8–14; 12–18) as well as younger children (6–8) and older adolescents (13–20 and adolescents vs. adults). Three studies combined escape with adaptive forms of coping besides distraction, referring to them as primary control coping (combining escape with problem-solving, direct action, comfort-seeking), catastrophizing (combining escape with support-seeking), or wishful thinking (combining cognitive escape with optimism). One of these unusual combinations showed a decrease, whereas two showed no age differences across childhood to adolescence (ages 8–16, 8–18, 12–18).

Summary

Although it was the most common maladaptive way of coping, the use of escape to deal with stress was generally infrequent across childhood and adolescence. The only exception might be the use of behavioural escape in early childhood to deal with peer provocation or uncontrollable stressors. Few age differences or changes in escape were found when measures tapped only the escape family. When age differences were revealed, however, they were predominantly decreases in escape concentrated during late childhood, when escape was used increasingly less often to deal with one’s own distress or with interpersonal stressors. The few comparisons that found increases in escape typically involved increasing use of cognitive modes of escape during early adolescence.

When escape was combined with other maladaptive strategies (such as aggression, helplessness, or rumination), usage was still low, but the pattern of age-related decreases was more pronounced and started already in early childhood. “Avoidance” aggregates that combined escape with a more adaptive form of coping, namely distraction, were the only escape combinations likely to show increases, but increases in this kind of “avoidance” were still less common than decreases (concentrated during the transition to

adolescence) and no differences (distributed across the entire age range). Aggregates that combined escape with substance use did not show clear age-graded patterns, but a longitudinal study suggested an increase with age during early adolescence.

A general pattern could be discerned across studies, although the tendency to examine escape in combination with a range of disparate coping strategies makes these conclusions tentative, so we do not illustrate them in a figure. Overall, studies suggested the low and steady usage of escape across childhood and adolescence (except behavioural escape during preschool). However, for pure escape measures, decreases were found starting in late childhood, and for more maladaptive combinations, decreases were seen starting already in early childhood. The only increases were found in cognitive forms of escape during early adolescence. Although higher levels in older compared to younger age groups were sometimes found for combinations that included distraction along with escape, it is likely that these combinations will no longer be used in future studies, since structural analyses confirm that distraction and escape are not part of the same higher-order family of coping (Ayers et al., 1996; Connor-Smith et al., 2000).

Accommodation, self-reliance, submission, and opposition

We also identified studies that included measures classified into one of four other families of coping: accommodation (e.g., cognitive restructuring, focusing on the positive, positive self-talk), self-reliance (e.g., accepting responsibility for the problem or solving the problem, keeping feelings to oneself, self-regulation of emotions), submission (e.g., rumination), and opposition (e.g., aggression, blaming others). Of these, children and adolescents reported relatively frequent use of accommodation to cope with stress (e.g., “I accepted the problem because nothing could be done to change it”), but items were often combined with other commonly used coping responses, such as problem-solving and distraction. Self-reliance was also used frequently, whereas levels of rumination and worry were moderate, and opposition was an infrequent response to stress. All of these coping strategies were studied less often than (or were often combined with) problem-solving, distraction, social support-seeking, and/or escape.

Accommodation

Accommodation was the most frequently studied of this group of coping families. Table 9 (see web resources) summarises 19 studies including 29 age comparisons involving accommodation. Accommodation was frequently combined with items that measured problem-solving, support-seeking, distraction, and emotion regulation (P in Table 9), and this is when age-related increases in accommodation were found between childhood and adolescence (ages 4–12, 7–10), during adolescence (ages 12–15, 16–19), and between adolescence and adulthood.

No age differences or changes in accommodative coping were found in nine studies (highlighted in yellow in Table 9). In all these studies, items were *not* combined with problem-solving items, or measures referred more directly to minimizing the stressor (e.g., “it is not a big deal!”) and thought-stopping rather than the use of positive self-talk and positive thinking strategies to change appraisals of stressful events. In these studies, no age differences

were found during childhood (ages 4–6, 8–11), between childhood and early adolescence (ages 8–14, 10–14), and during adolescence (ages 12–16, 13–20). Hence, accommodation is a common response to stress among children and adolescents but it may be the more advanced cognitive processing strategies that show increases, rather than the ability to think positive thoughts or stop negative ones. Finally, two studies reported lower accommodative strategies in adolescence compared to late childhood and early adolescence (ages 8–16, 9–14). In these studies, children completed the Kidcope (Spirito, Stark, Grace, & Stamoulis, 1991) when thinking about homesickness at camp or a self-identified stressor. However, it was not clear how distressing these events were to children, and accommodation items were combined with items assessing a range of potential responses (e.g., thinking about supportive others, doing fun things).

Self-reliance

Self-reliance was rarely assessed separately from other coping categories and was most frequently combined with items that measured emotional expression or regulation. However, three studies that included measures categorized as assessing self-reliance all revealed increases with age: it was used more frequently among adolescents than children (ages 8–12, 9–14; Ryan, 1989; Spirito et al., 1991) and was also found to be higher in middle compared to early adolescence (ages 12–16; Frydenberg & Lewis, 2000). This pattern is consistent with the study described previously in which youth’s reports of self-reliance showed linear increases from age 11 to 15 (Crystal et al., 2008).

Submission

Submission (e.g., rumination, worry, giving up) was measured in 11 studies (Bernzweig, Eisenberg, & Fabes, 1993; Brown et al., 1986, 1992; Frydenberg & Lewis, 2000; Garnefski, Legerstee, Kraaij, van der Kommer, & Teerds, 2002; Hampel & Petermann, 2005, 2006; Losoya, Eisenberg, & Fabes, 1998; Newman, Murray, & Lussier, 2001; Phipps, Fairclough, & Mulhern, 1995; Thomsen et al., 2002). In general, the pattern of age-related differences in rumination was difficult to discern because of the variety of ways of assessing this strategy and forming composite scores. Nevertheless, worrying did seem to be relatively stable in early adolescence (ages 10–14; Hampel & Petermann, 2006) and within the age range of 8–18 (Brown et al., 1986), but was higher in early adolescence (10–14) than in late childhood (ages 8–9; Hampel & Petermann, 2005), and higher in later adolescence than in childhood (Brown et al., 1986) or early adolescence (Frydenberg & Lewis, 2000). Moreover, adults reported more worry than adolescents (ages 18–71; Garnefski et al., 2002). However, when “giving up” was measured instead of worry, this coping response (perhaps a form of helplessness) was rare, less common than worry, fairly stable in late childhood (ages 6–8, 8–10; Bernzweig et al., 1993; Newman et al., 2001), and was still rare but higher in early adolescence than in childhood (ages 4–12; Losoya et al., 1998).

Opposition

Opposition and aggression in response to stress were low in most studies, but some age-related patterns were found. Aggression in

response to stress, when reported by teachers, declined between the ages of 4–6 and 6–8 and remained relatively stable until age 12 (Losoya et al., 1998). However, self-reports in eight studies revealed more use of verbal aggression (e.g., “taking it out on others”), venting, and other forms of opposition during adolescence when compared to late childhood (e.g., ages 7–16, 10–13, 12–15; Eschenbeck, Kohlmann, & Lohaus, 2007; Griffith, Dubow, & Ippolito, 2000; Hampel & Petermann, 2006; Hoffman, Levy-Shiff, Sohlberg, & Zarizki, 1992; Roecker, Dubow, & Donaldson, 1996; Ryan, 1989; Seiffge-Krenke, Aunola, & Nurmi, 2009; Spirito et al., 1991), most often in response to peer conflict or school problems. Three studies showed no age differences in opposition during middle to late adolescence (ages 13–18; 16–19) in response to family problems, peer problems, and self-identified stressors (Griffith et al., 2000; Groër, Thomas, & Shoffner, 1992; Seiffge-Krenke et al., 2009). Finally, adults reported more opposition and venting than adolescents in one study (ages 12–71; Garnefski et al., 2002).

Integration of developmental findings across families of coping

The study of a profile of stress responses distinguishes work on coping from research that focuses on individual strategies, such as problem-solving or rumination. Hence, an important goal of this review was to examine age trends in the organization of coping actions. We focused on the families of coping that were most commonly employed at each age, on findings within studies about the trade-offs in use of different coping strategies, and, in the few studies that conducted such analyses, on age differences or changes in the structure of coping. Our review revealed several major age-related changes in profiles of coping.

Preschool age

A clear trend detected across studies was that patterns of coping became more differentiated with age. Young children primarily seek support from adults or use overt behaviours to get what they want, overcome obstacles, stand their ground, distract themselves, or withdraw from stressful encounters. Support-seeking, especially from adults, seems to be an all-purpose strategy primed to back up other coping actions: useful for regulating behaviour when instrumental actions are not effective, for regulating attention when behavioural distraction is not working, and for regulating emotion when stressors are too arousing. In this sense, support-seeking may be a safety valve that prevents frustration or failure from leading to more maladaptive reactions to stress, such as defeat, aggression, or outbursts. This could explain why the less adaptive families of coping, such as opposition, helplessness, submission, and passivity, are not normatively common even at this young age.

In fact, the primary alternative to support-seeking that young children use when coping efforts are not working is behavioural escape or avoidance. They leave the scene of stressful encounters if they can. Although at older ages, when alternative strategies are available, escape may signal high stress reactivity or a lack of competent coping strategies (Compas et al., 2001), during preschool age and especially when dealing with peer provocations, escape or avoidance may be a preferred alternative to escalating conflict (Baumgartner & Strayer, 2008; Eisenberg, Fabes, Nyman, Bernzweig, & Pinuelas, 1994). It may also be an avenue that allows

young children to re-engage with the stressor after regrouping or calming down.

At the same time, support-seeking is likely to be more developmentally useful than escape in the face of obstacles and difficulties. Support-seeking, when it leads to cooperative joint coping between a child and a competent and supportive adult, may be a pathway to more independent and complex forms of problem-solving, negotiation, and emotion management (e.g., Neitzel & Stright, 2003; Zimmer-Gembeck, Lees, & Skinner, in press). Normative trends from the current review support this: across early childhood (especially the five to seven-year-shift) when support-seeking is high, decreasing reliance on escape (especially combined with other maladaptive forms of coping, such as passivity) is accompanied by increasing use of problem-solving and behavioural distraction (in situations in which distraction is not already high). Consistent with work on attachment, this pattern suggests that an indicator of risk at preschool age (and a marker of cumulative failure of social partners to provide support) would be reactions to stressful encounters in which children primarily rely on social withdrawal and isolation. Finally, young children’s almost exclusive reliance on behavioural strategies when coping makes clear why the use of observational methods to capture coping is prevalent in studies of young children (and infants and toddlers) but is rarely seen in older children, adolescents, or adults, when cognitive strategies are also prominent.

Middle childhood

As children start school, they seek to become increasingly self-reliant and their coping strategies become more differentiated and sophisticated. As pointed out by Compas et al. (2001):

More complex methods of achieving the goals of emotional palliation and problem-solving emerge in early to middle childhood, with the development of more complex language and metacognitive capacities. These include cognitive reframing or restructuring a problem situation, cognitive representations of absent caregivers, using self-talk to calm negative emotions, and generating alternative solutions to solve problems. (p. 91)

Our review revealed increasing differentiation during middle childhood when cognitive strategies emerge across all families of adaptive coping, especially mastery-related problem-solving strategies, complex distraction techniques, and the capacity to intentionally direct attention to positive features of stressful situations. In fact, the emergence of cognitive strategies may account for some of the increases in self-reliance seen across this age range.

At the same time, support-seeking becomes more differentiated in terms of sources and reasons for seeking support. Although they continue to rely on parents, children find additional sources of support (e.g., from peers and teachers), and so seeking emotional (but not informational) support from caregivers declines. Children gain a greater understanding of situational specificity—older children and adolescents become increasingly more selective about whom to go to for support when dealing with different kinds of stressful situations. They can use these more specific supports (such as advice) to renew independent coping efforts that are better coordinated with environmental contingencies and interpersonal options. It is likely that children’s growing abilities to take the perspective of others allows them to better coordinate their coping with social

partners and to more effectively negotiate interpersonal stressors (the most common and most stressful situations identified by children and adolescents). Unfortunately, however, few measures of coping include negotiation in their profile of strategies, so this expectation could not be examined using findings from current studies. As cognitive strategies for dealing with problems and managing emotions are added to behavioural strategies during middle childhood, it is not surprising that clear declines in escape and other maladaptive forms of coping are also apparent.

Adolescence

Studies that directly examined the breadth of coping strategies found that, in general, children and adolescents' coping repertoires increase with age. As children grow older, instrumental action is supplemented by planful problem-solving, which is among the most common strategies adolescents report using when they encounter challenges. Distraction tactics also become more diverse; compared to children, adolescents more often draw upon *both* behavioural and cognitive strategies. The use of both behavioural and cognitive strategies may also occur with the coping strategy of escape, although findings were less clear. Further, adolescents are better able to attend to and reflect on their own internal emotional states, and increasingly rely on more sophisticated strategies to deal with emotions. During adolescence, such emotion-focused strategies can also lead to more rumination, which may even become more common into early adulthood. At the same time, other useful coping strategies are on the rise, including positive self-talk and intentional self-regulation of emotion. Adolescent coping is increasingly self-reliant as cognitive strategies become more powerful in guiding action and regulating emotions in the face of situational pressures.

Other indications of increasing differentiation were evident when we compared general findings across studies of older adolescents to those of children and younger adolescents—age differences in coping among older adolescents are more dependent on the type of adversity studied (e.g., coping in response to specific, self-identified stressors vs. general coping patterns). An expanding and differentiated repertoire of coping actions coupled with an increasing appreciation of the specific requirements of different stressful situations is associated with increases in coping flexibility from early childhood to adolescence. As noted by Compas et al. (2001):

Greater diversity and flexibility in the range of coping responses available to the individual is expected to develop during middle childhood and adolescence. In addition, with increasing metacognitive skills in early adolescence, a greater ability to match coping efforts to the perceived objective characteristics of stress is expected. (p. 91)

However, it is important to note that, although some studies did provide support for increased flexibility of coping among adolescents, especially older adolescents compared to younger groups, it is possible that *less* flexibility will occur with age as young people more routinely rely on the coping strategies that work well in particular situations (e.g., problem-solving for controllable stressors compared to distraction for uncontrollable ones; Sorgen & Manne, 2002).

Results also clearly showed that early strategies, such as behavioural distraction or contact seeking, do not disappear. In fact, one trend, which was hard to verify with the current set of studies, suggested that it is adaptive to maintain access to these more “basic”

coping strategies. Early behavioural forms of coping may actually be more effective when dealing with extreme forms of stress, and so older children and adolescents (maybe even increasingly and intentionally) continue to draw upon them when they are needed. For example, the supposition that behavioural distraction (i.e., doing something fun) is more effective than cognitive distraction (i.e., thinking about something pleasurable) in taking one's mind off seriously troubling events, may account for the increased use of distraction even during adolescence when dealing with life-threatening uncontrollable events, like parental cancer.

Many of these age differences suggest a pattern of normative improvements, as would be expected. However, some age comparisons suggest increasing struggles with stressors and coping, especially during the transition to adolescence (Donaldson, Prinstein, Danovsky, & Spirito, 2000). Compared to older adolescents, young adolescents sometimes showed lower levels of help-seeking and effort expenditure even in domains where they would be helpful (e.g., school). Moreover, although overall levels were low, there is a rise during early adolescence in some of the potentially more maladaptive stress reactions, such as cognitive escape, rumination, verbal aggression, and venting. It is even possible that developmental advances may introduce new vulnerabilities. For example, young adolescents' increasing capacity to reflect on their own emotions brought with it increasingly sophisticated emotion regulation strategies, such as positive self-talk. However, it may also open the door to emotional vulnerabilities, such as increases in rumination and blaming others. In a similar vein, the same forward-looking capacities that allow adolescents to *plan* for the future also allow them to *worry* about the future. And the increasing autonomy of adolescents, although generally a positive development, may also permit them to escape more effectively from home, when, for example, home contains a parent suffering from cancer. Coping frameworks will need to be able to account for patterns of developmental gains *and* losses (Baltes, 1987).

Summary

Overall, the developmental trends we identified are congruent with the picture painted in major reviews of coping during childhood and adolescence (Decker, 2006; Eisenberg et al., 1997; Fields & Prinz, 1997; Holt et al., 2005; Losoya et al., 1998). However, the inclusion of many additional studies and the use of organizational strategies suggested by the developmental framework provided a much clearer picture of quantitative and qualitative age differences in coping, starting in preschool and ending in early adulthood. One issue on which previous reviewers agreed was the marked inconsistency in age trends for every kind of coping examined. This conclusion can now be updated by the sets of different trends identified for each family of coping based on the particular combinations of coping used in measures (weighting especially heavily studies involving “pure” measures), on the specific age ranges (focusing especially on key developmental transitions), and on the target stressor (especially its controllability).

When considering the findings as a whole, it is clear that a major complication in identifying age trends is that at least two different kinds of developmental changes can be distinguished. On the one hand, there are age-graded increases in children's general coping *capacities*, as seen in cognitive and meta-cognitive elaborations of problem-solving (from instrumental action to planful problem-solving), distraction (adding cognitive to behavioural strategies), and

support-seeking (from reliance on adults to more self-reliance). On the other hand, there are improvements with age in the *deployment* of specific coping strategies according to which ones are most effective in dealing with particular kinds of stressors, as seen in the increasing use of problem-solving for dealing with difficulties in school or sports and the increasing use of distraction for dealing with uncontrollable stressors or to manage emotions. Combining these two trends, however, means that children and adolescents may show decreasing *use* of strategies that they are increasingly *capable* of deploying, as they become both more self-reliant and more discriminating about which strategies are most effective for dealing with different kinds of stressors.

Recommendations for future research on the development of coping

Existing studies provide important information, but their limitations are also evident. In many studies, the development of coping was not the central empirical question, sometimes resulting in unclear or incomplete reports of findings. About one-third of the studies had small sample sizes (<100) and only 10 were longitudinal. It was not possible in the review to completely overcome problems created by inconsistencies in how coping was assessed. Coding coping measures according to the families brought some order, but it could not add ways of coping that had not been assessed, nor could it “unmix” ways of coping that had been combined within measures. For example, combining “practical” ways of coping during preschool disguises the potential shift away from support-seeking and toward more independent action. Or using “emotion-focused” combinations during adolescence obscures the potential shift away from venting and toward more controlled emotional expression. At the most general level, the biggest limitation of studies of age differences and changes is that decisions about how to empirically investigate them, such as which ways of coping to measure and what ages to study, were rarely made on the basis of developmental theories of coping. This, of course, reflects a limitation, not of the researchers, but of the field (Compas, 1998; Compas et al., 1992; Coping Consortium, 1998, 2001; Eisenberg et al., 1997; Skinner & Zimmer-Gembeck, 2007).

Several practical recommendations for future research on the development of coping follow directly from the current review. They focus on issues of design, such as the selection of ways of coping, age groups and target stressors, and of data analysis, such as the variety of ways to examine different kinds of potential developmental changes. There is also a more general recommendation that research would benefit from theories that integrate the current findings with closely-related research on the development of individual ways of responding to and dealing with stress, failure, and challenge, which are currently distributed across a variety of areas (Compas, 1987, 1998; Eisenberg et al., 1997; Skinner & Zimmer-Gembeck, 2007; Wolchik & Sandler, 1997; Zimmer-Gembeck, Lees, Bradley, & Skinner, 2009).

Design issues

A key recommendation for future studies would be for researchers to more carefully coordinate their selection of age groups and gaps with the specific stressors they examine and the families of coping (and members within families) that they assess. For example, if preschool is the target age, then it would be important to assess multiple practical ways of coping from different families separately, and to distinguish situations in which trusted adults are

available from those in which they are not. Moreover, an analysis of the *forms* of support sought or spontaneously provided, and the balance between individual and interpersonal coping, might reveal additional developmental trends. The 5-to-7 shift might be an especially informative age window during which to detect emerging self-reliance, and how children become better able to coordinate their coping with others in the face of higher levels of stress.

If the focus is late childhood to early adolescence, then a variety of more cognitive strategies from different families should be assessed in addition to, and separately from, behavioural strategies, and situations that are controllable or escapable should be distinguished from those that are not. Moreover, a focus on how children are able to switch back and forth *between* behavioural and cognitive forms within the same family, and between different families to deal with different stressors, might reveal interesting developmental trends. The shift from 10 to 12 years of age might be an especially informative age window during which to detect increasing differentiation and flexibility of strategy use.

Selection of stressors and domains

To get a clearer picture of developmental differences and changes, it will be necessary to consider the stressors children are facing when they formulate their coping responses. On the one hand, if children are asked about specific stressors or observed in specific stressful situations, then researchers can analyse whether children increasingly prefer the family of coping that is most suitable for dealing with that class of stressor or whether children increasingly use more developmentally advanced ways of coping from the appropriate family. On the other hand, if researchers study self-identified stressors, they should focus instead on the emergence of new kinds of developmentally-graded members across the wide variety of families that may be used to deal with unselected stressors, looking for more general shifts in forms of coping; for example, from interpersonal to individual forms during the 5-to-7 shift or from behavioural to cognitive means during late childhood.

It is important to point out, however, that this latter strategy may interfere with the detection of developmental differences. If children and adolescents report their coping in response to unspecified events, it will always be difficult to determine whether age-related changes are due to actual changes in how children cope or to changes in the kinds of stressors that they experience or report (Folkman, Lazarus, Pimley, & Novacek, 1987). Hence, future studies that have the development of coping as their focus should utilize methods that allow the stressor to be specified, for example, by observing or assessing domain-specific stressors, specific hypothetical stressors, or requesting children to self-identify a stressor within a specific domain. If researchers elect to use unspecified self-identified stressors, then they can classify stressors post hoc themselves or they can ask respondents to rate the events on important dimensions, such as severity or controllability. If all the current studies had used such strategies, it might have been easier to integrate their findings on age trends.

Analysis of developmental change

Our review suggests that, in addition to documenting the ages at which specific ways of coping first appear and examining age

differences in mean level of each way of coping, it would be informative to analyse developmental differences in the structure of coping. Previous studies offer several strategies for investigating structural change, including the analysis of age differences in the factor structure of multiple ways of coping, in the zero-order correlations among different ways of coping (or the inter-factor correlations), and in the number and variety of coping strategies available or utilized. Recent studies have taken advantage of growth modeling to identify age-related trends in longitudinal data (e.g., Seiffge-Krenke et al., 2009; Vierhaus & Lohaus, 2009), opening up the possibility of detecting piecewise or curvilinear changes.

Ingenuity is needed to devise empirical indicators for other meaningful developments, such as partial substitution of old forms of coping with new, flexibility in use of different means, changing fallbacks, hierarchies, or sequences of strategies, and balances between advances and vulnerabilities. There is much work to be done in order to examine how coping strategies become more organized and flexible in their deployment, while they also may be changing in form and function with age. If previous research on age differences and age changes in ways of coping is one foundation upon which new and improved developmental frameworks will be constructed, then extracting lessons from this body of work, which was the purpose of the current review, can be considered a useful contribution to these endeavours.

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Notes

1. Web resources mentioned in this article can be found at the following address: <http://jbd.sagepub.com/content/35/1/1/suppl/DC1>
2. Since stress reactions and action regulation appear to have different underlying temperamental bases and different developmental timetables (Compas et al., 2001; Eisenberg et al., 1997; Metcalfe & Mischel, 1999; Rothbart, Derryberry, & Posner, 1994), it is likely that research on normative age changes in stress reactivity will eventually contribute to a more complete picture of major developments in coping.
3. It is important to note that the majority of the studies reported age differences or correlations with age; only 10 included longitudinal data. Nevertheless, for brevity's sake, we sometimes use the term "increases" as shorthand to refer to positive correlations with age, age differences in which older children have higher mean levels than younger children, and actual intraindividual increases. We also use "decreases" as shorthand to refer to negative correlations with age, age differences in which older children have lower mean levels than younger children, and actual intraindividual decreases. We use the term "change" only to refer to longitudinal findings.

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