



Max Planck Research Group

Affect Across the Lifespan

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The **Max Planck Research Group "Affect Across the Lifespan"** (Head: Michaela Riediger) investigates age differences in affective experiences and competencies from adolescence to old age. A first research emphasis on affect dynamics involves investigations on age differences in the inner experiences, outward expressions, and physiological processes associated with affective experiences and on their underlying mechanisms. A second research emphasis on affective competencies focuses on age differences in abilities related to understanding and managing emotional aspects of life.



Research Team 2011–2013

Antje Rauers, **Michaela Riediger**, Cornelia Wrzus (as of 09/2013: Johannes Gutenberg University Mainz, Germany)

Postdoctoral Fellows

Gloria Luong, Markus Studtmann (until 06/2012)

Predocctoral Fellows

Elisabeth Blanke (MaxNetAging Research School), Kathrin Klipker (LIFE)

Visiting Researcher

Michael Boiger (University of Leuven [KU Leuven], Belgium)

Introductory Overview

How do emotional experiences change from adolescence to old age? And how does the ability to understand and deal with affective experiences develop across the lifespan? The Max Planck Research Group "Affect Across the Lifespan" seeks to contribute to a better understanding of these questions. Without the abilities to experience, express, understand, and control affective states—such as anger or joy—we would not succeed in many life tasks, from forming and maintaining social relations to successfully pursuing a career. The purpose of this Research Group is to provide new insights on age-related differences in these various facets and competencies of affective functioning, focusing primarily on the age range from adolescence to old age. Unique features of our research approach are the combination of a mobile-phone-based experience-sampling technology with psychophysiological monitoring and controlled experimental paradigms, and the consideration that affective functioning takes place in, and is influenced by, the individual's social and ecological context.

Overview of Research Emphases

Our work is characterized by two interrelated research emphases. A first emphasis on *affect dynamics* involves empirical investigations on age-related differences in the inner experiences, outward expressions, and physiological processes associated with affective experiences from adolescence to old age and on the mechanisms underlying these age-related differences, such as motivational and cognitive processes. A second research

emphasis on *affective competencies* is characterized by empirical investigations on age-related differences in abilities related to understanding and managing emotional aspects of life. This report gives an overview of our research activities regarding both research emphases between 2011 and 2013. We start out with our research on affect dynamics and then turn to our second research emphasis on age-related differences in affective competencies.

Research Emphasis 1: Age-Related Differences in Affect Dynamics

Our investigations of affect dynamics involve various studies, age groups, and methodological approaches. Below, we briefly summarize our core research activities on this topic during the report period from 2011 to 2013.

The Multi-Method Ambulatory Assessment (MMAA) Project

This project is a longitudinal research endeavor that we have been conducting since 2007 in cooperation with Max Planck Research Fellow Gert G. Wagner and the Center for Lifespan Psychology. Five measurement phases in a total sample of about 600 participants ranging in age from adolescence to old age have been completed (see Figure 1). Most participants have completed two or more of these measurement waves. The main goal of this project is to chart various aspects of affective functioning and their interrelations with motivational and cognitive processes over time, as they naturally occur in the daily lives and natural environments of individuals

from various age groups. To meet this aim, we combine several ambulatory assessment methodologies, which allow measurements of experiences, cognitive capacity, and physiological processes in daily-life contexts, with interview techniques and well-controlled experimental paradigms. Ambulatory assessment methods include mobile-phone-based experience sampling and ambulatory bio-monitoring of cardiac activity (assessed via 24-hour electrocardiography), physical activity (assessed via 24-hour accelerometry), and hormonal processes (assessed via repeated ambulatory saliva samples).

A comprehensive summary of all research activities within the MMAA project during 2011 and 2013 is beyond the scope of this report.

Core Research Team

*Michaela Riediger
Cornelia Wrzus
Gloria Luong
Gert G. Wagner*

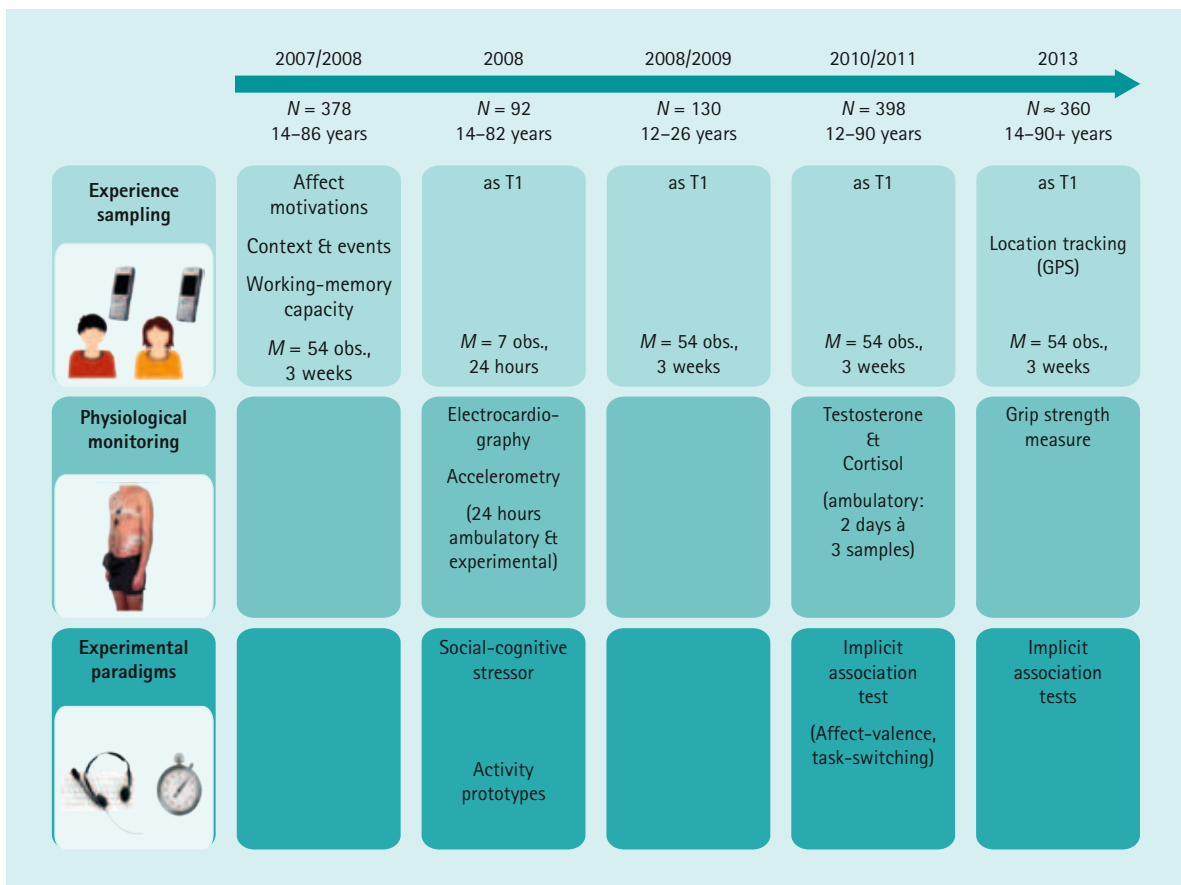


Figure 1. Overview of the longitudinal MMAA project. Since 2007, five assessment waves have been conducted in a sample ranging in age from adolescence to old adulthood. New participants, and young adolescents in particular, have been regularly recruited to maintain the age composition of the sample. The measurement approach combines various ambulatory assessment techniques, which allow the measurement of affective, physiological, and cognitive functioning in participants' daily lives and natural environments, with well-controlled experimental paradigms and interviews conducted in the participants' homes. The ambulatory assessment techniques include mobile-phone-based experience sampling as well as various ambulatory biomonitoring devices.

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Key Reference

Riediger, M., Wrzus, C., Klipker, K., Müller, V., Schmiedek, F., & Wagner, G. G. (in press). Outside of the laboratory: Associations of working-memory performance with psychological and physiological arousal vary with age. *Psychology and Aging*.

In the following sections, we will therefore describe a selection of exemplary findings pertaining to age differences in (a) everyday affect-regulation motivation, (b) associations between sleep quality and emotional well-being, and (c) affective and physiological responding to daily hassles and uplifts. Further analyses have focused, for example, on age differences in associations between affective and physiological arousal and working-memory capacity (Riediger, Wrzus, Klipker, Müller, Schmiedek, & Wagner, in press) and on implications of individual differences in appreciation of negative affective experiences for health and well-being.

Seeking Pleasure and Seeking Pain: Age Differences in Everyday Affect-Regulation Motivation

Evidence is accumulating that day-to-day emotional experiences differ between individuals from different age groups. Adolescence, for example, is typically characterized by relatively more emotional turmoil and a relatively higher prevalence of negative emotionality than adulthood. Across adulthood, there are also general patterns of age-related differences. When repeatedly asked to report their momentary feelings, older adults typically report higher emotional well-being in their daily lives than younger adult age groups, and

this difference cannot be explained by age-related differences in daily activities and time use (Riediger & Rauters, in press). The psychological mechanisms underlying these age-related differences in daily-life affective experiences are not yet well understood. Using data from the first assessment wave of the MMAA project, we demonstrated in our earlier work that considering the proactive aspects of affective experience provides new insights in this respect (Riediger, Schmiedek, Wagner, & Lindenberger, 2009). Among other things, participants had reported, on average 54 times throughout 3 weeks, how they momentarily felt and whether they currently wanted to dampen, enhance, or maintain each of six positive and negative affect facets (i. e., feeling angry, downcast, anxious, interested, joyful, and content). Participants further completed two trials of a numerical memory-updating task assessing momentary working-memory capacity on each measurement occasion. Consistent with evidence from prior studies, we found an age-related increase in day-to-day emotional well-being. Interestingly, these age differences largely corresponded to differences in how people wanted to influence their feelings. As expected, contra-hedonic orientations did not occur frequently in the daily lives of most participants. Across the entire sample, contra-hedonic orientations were reported in 15% of the measurement occasions on average and were thus considerably less prevalent than prohedonic orientations, which were reported in 92% of the measurement occasions on average. There were, however, pronounced age-related differences: Contra-hedonic orientations to enhance or maintain negative affect, or to dampen positive affect, were most prevalent among adolescents and decreased with age. Prohedonic orientations, in contrast, were most prevalent in later adulthood. Importantly, the age differences in pro- and contra-hedonic orientations could not be attributed to age-related differences in daily-life emotional experiences, activities, or social partners. Instead, they suggest that part of the negative emotionality that is characteristic of adolescence, and part of the positive emotionality that is characteristic of older adulthood,

might be intentionally sought and maintained by the individual. Why should this be the case? From an instrumental-affect perspective, one could speculate, for example, that age differences in regulatory orientations arise because affective states differ in how instrumental they are for dealing with the developmental tasks of different life phases. For example, seeking negative mood might help adolescents to establish emotional autonomy from parents and other adults, to develop a sense of identity, or to train their self-regulatory competences. Seeking positive mood in old age, in contrast, might facilitate the pursuit of affiliative or generative interests. A complementary explanation derives from the mixed-affect perspective, namely, the idea that people might occasionally seek apparently negative affective experiences because they are accompanied or followed by positive experiences (e. g., because they enjoy feeling sad). Consistent with this account, we indeed found that the contra-hedonic motivation of wanting to maintain one's current negative affect was associated with a higher likelihood of mixed affect, that is, a higher likelihood of a co-occurrence of positive and negative affect that were both above the individual's average. Furthermore, the pattern of age-related differences in the prevalence of mixed affect mirrored that of contra-hedonic orientation, whereby both were most prevalent among adolescents and least prevalent among older adults. Irrespective of participants' age, more recent analyses regarding within-person associations between pro- and contra-hedonic orientations and within-person fluctuations in working-memory capacity were in line with the view that contra-hedonic orientations come at a cost (Riediger, Wrzus, Schmiedek, Wagner, & Lindenberger, 2011). We assume that this is the case because contra-hedonic orientation is the exception rather than the rule and requires the effortful overriding of the prevailing prohedonic orientation. While prohedonic orientation was only weakly associated with within-person fluctuations in working-memory performance, the association of contra-hedonic orientation and working-memory performance was substantially more pronounced: The more contra-

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- Riediger, M., & Rauters, A. (in press). Do everyday affective experiences differ throughout adulthood? A review of ambulatory-assessment evidence. In P. Verhaeghen & C. Hertzog (Eds.), *The Oxford handbook of emotion, social cognition, and everyday problem solving during adulthood*. New York: Oxford University Press.
- Riediger, M., Wrzus, C., Schmiedek, F., Wagner, G. G., & Lindenberger, U. (2011). Is seeking bad mood cognitively demanding? Contra-hedonic orientation and working-memory capacity in everyday life. *Emotion, 11*, 656–665. doi:10.1037/a0022756

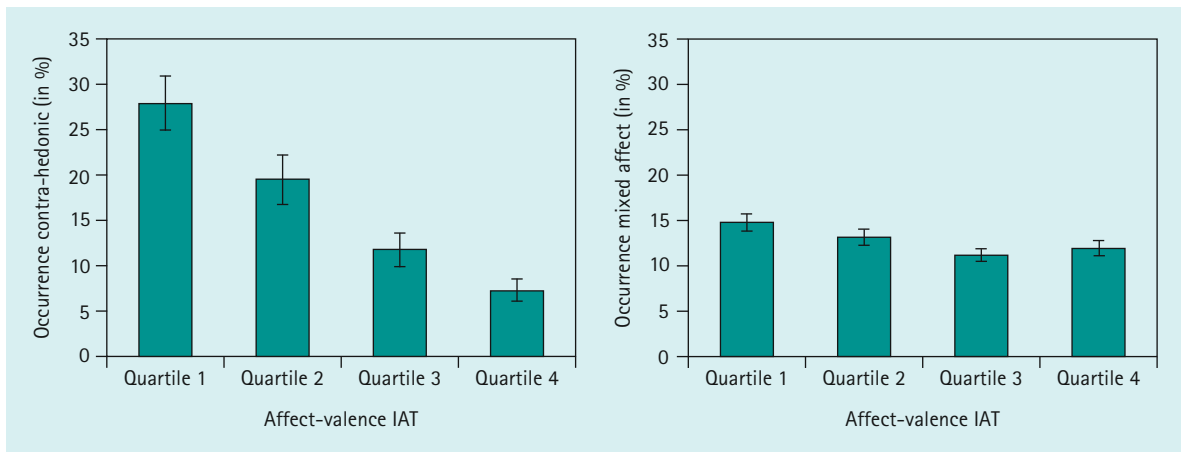


Figure 2. Prevalence of contra-hedonic orientation (left panel) and mixed affect (right panel) varies depending on participants' mental representations of affect valence. The four groups represent the quarters of the distribution of the affect-valence Implicit Association Test (IAT). Quartile 1 includes the 25% of the participants with the lowest, and quartile 4, the 25% with the highest, affect-valence IAT scores. Higher scores indicate more distinctive associations of happiness with pleasantness (rather than unpleasantness) and unhappiness with unpleasantness (rather than pleasantness). The more distinctively participants associated happiness with pleasantness and unhappiness with unpleasantness, the less likely they were to report contra-hedonic motivation and mixed affect in their daily lives. Error bars: ± 1 standard error.

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hedonic orientation participants reported, the lower their momentary working-memory performance was, and this was independent of the participants' momentary affective experience. This effect of contra-hedonic orientation on working-memory performance was about ten times larger than that of prohedonic orientation. These results demonstrated that occurrences of contra-hedonic orientation were associated with within-person fluctuations in momentary working-memory performance. In addition, participants who reported more contra-hedonic orientation on average showed lower average working-memory performance across all measurement occasions, which may partly reflect the aggregated effect of momentary occurrences of contra-hedonic orientation. Average prohedonic orientation, in contrast, was not significantly related to between-person differences in average working-memory performance. These findings were stable after controlling for participants' age and perceptual-motor speed, as well as for the time of day, momentary activity, presence of social partners, and for trend-related effects, in addition to momentary positive and negative affect. Furthermore, the reductions in working-memory performance accompanying contra-hedonic orientation were not merely due to nonadher-

ence to the task. Instead, the negative effects of contra-hedonic orientation on momentary working-memory capacity were also evident when only performance ranges that required meticulous effort to solve the task were taken into consideration. The effects of contra-hedonic orientation on working-memory performance could thus not be attributed to a lack of effort or to differences in other individual or situational characteristics. Rather, they are consistent with the idea that contra-hedonic orientation is more strongly associated with momentary decrements in available working-memory capacity compared to prohedonic orientation.

Overall, these analyses demonstrated that taking into account motivational aspects of how people want to influence their feelings contributes to our understanding of age-related differences in affective functioning from adolescence to old age. Up to this point, however, we had exclusively relied on participants' self-reported affect-regulation motivation, that is, could only assess information that was accessible to participants' introspection and not rule out the possibility of response biases. In the fourth assessment wave of the MMAA project, and guided by the mixed-affect perspective alluded to above, we therefore additionally implemented an experimental approach to as-

ness associations with mental representations of affect valence using the Implicit Association Test (IAT) paradigm. Again, we found a similar pattern of age-related differences, with adolescents and older adults standing out: Compared to adults from various age groups, adolescents paired positive affect least distinctively with pleasantness (vs. unpleasantness) and unhappiness least distinctively with unpleasantness (vs. pleasantness). The older the participants were, however, the more differentiated were their representations of the valence of affective states. Furthermore, the less differentiated people's mental representations of affect valence were, the more likely they were to report mixed-affect and contra-hedonic motivation in their everyday lives (see Figure 2). Although causal conclusions are not possible given the correlational nature of these studies, these findings are in line with the mixed-affect perspective. The comparatively higher prevalence of mixed-affective experiences in adolescence thus could be among the factors that contribute to a comparatively higher prevalence of self-reported contra-hedonic motivation in that age group. This seems to be associated with relatively more undifferentiated mental representations of the valence of affective states in adolescence.

Feeling Good When Sleeping In? Age Differences in the Association Between Sleep and Affective Well-Being

Another area of investigation within the MMAA project has addressed age-related differences in the association between sleep and affect. It is undisputed that sleep fulfills important functions, such as allowing physical repair or facilitating memory processes. Less is known about how sleep relates to affective well-being. So far, the respective knowledge largely stems from sleep deprivation or clinical studies. In contrast to this prior focus on extreme lack of sleep or on associations with affective processes in mental pathology, our aim was to investigate how naturally occurring variations in sleep duration relate to daily affect in psychologically healthy individuals. Survey studies show that sleep duration and quality decrease with age. In contrast, everyday affective well-being becomes more

positive throughout adulthood, at least into young-old age. We therefore hypothesized that, in older age, the association between sleep duration and affect should be decoupled; that is, older adults' affective well-being should be less affected by short sleep. As a first step toward investigating this idea, we used data from the 24-hour ambulatory biomonitoring phase of the MMAA project where 92 participants aged 14 to 92 years had worn an ambulatory biomonitoring system continuously for 24 hours and answered questions on the mobile phones during that time. The biomonitoring system continuously recorded, among other things, participants' physical posture and movements via acceleration sensors attached to the sternum and right thigh. Participants' momentary reports on six affect adjectives at the last assessment in the evening and the first assessment in the morning served as indicators for evening and morning affective well-being. Together with colleagues from the Center for Lifespan Psychology, we used the physical activity data collected between 8 p.m. in the evening and 11 a.m. the next morning to determine objective indicators of sleep duration and quality in addition to self-reports. Nightly activity, body posture, and change in body posture during the night were determined using a newly developed classification algorithm based on angular changes of body axes. The duration of supine posture and objective indicators of sleep quality showed convergent validity with self-reports of sleep duration and quality as well as external validity regarding expected age differences (Wrzus et al., 2012a). We continued this investigation, which had focused on data from just one night in the lives of the participants, in a second step using self-report data from an average of nine nights from the fourth experience-sampling wave of the MMAA project (Wrzus, Wagner, & Riediger, in press). For adolescents, affective well-being in the morning was worse the shorter they had slept the previous night. For adults aged over 20 years, however, affective well-being was worse following nights with much shorter or longer than average sleep duration. This effect was more pronounced the older the participants were (see Figure 3). These age differences were not related to age

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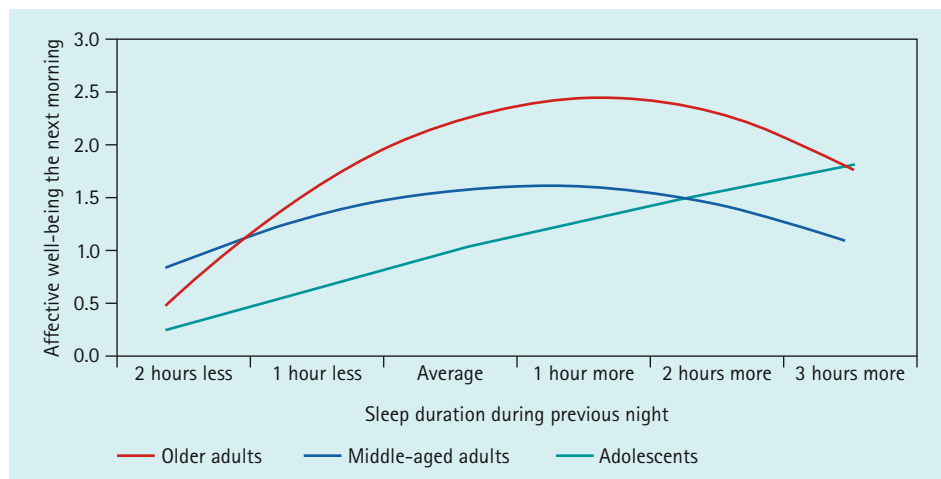


Figure 3. Affective well-being the next morning varied with the amount of sleep during the previous night—and differently so for people of different ages. On average on nine mornings, people reported their affective well-being and how long they had slept the previous night. For adolescents, affective well-being in the morning was worse the shorter participants had slept the previous night. For adults aged over 20 years, however, affective well-being was worse following nights with much shorter *or* longer than average sleep duration. This effect was more pronounced the older the participants were (adapted from Wrzus et al., 2012).

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differences in waking times or in times of assessments in the mornings. Also, the effects were highly similar for weekdays and weekends. The mechanisms driving the stronger coupling between longer-than-average sleep duration and lower affective well-being in the morning for older compared to younger adults, and the absence of this effect among adolescents, remain to be investigated. Exploratory analyses on health and sleep deficits/surplus on previous nights suggest that other factors play a role, for example, sleep quality or appraisals of sleep. Perhaps older adults are more likely to sleep longer when sleep quality is low, which in turn influences affective well-being in the morning; or they appraise longer-than-average sleep more negatively than younger people and are dissatisfied with the “wasted” time. Especially among adolescents, the observed average sleep durations of slightly more than 7 hours might be insufficient to satisfy their sleep need.

Keeping One’s Cool: Affective and Physiological Reactivity to Daily Hassles and Uplifts

Yet another area of investigation within the MMAA project has addressed age-related differences in how people affectively respond to unpleasant and pleasant daily-life events, that

is, to daily hassles and uplifts. People typically respond with an increase in negative affect to the experience of daily hassles, which is often also accompanied by physiological changes. Regarding age-related differences in such affective responses, there are two prevailing, but opposing, theoretical positions. Some researchers argue that emotional responsiveness should decrease throughout adulthood because life experience and higher motivation to maximize emotional well-being should contribute to an improved ability to control affective reactions to hassles. Other researchers, in contrast, claim that emotional responsiveness should increase across adulthood because age-related declines in fluid-cognitive capacity should diminish people’s ability to regulate their affective experiences when facing hassles. To bridge this disagreement, we derived the overpowering hypothesis that older adults react more strongly to hassles than younger individuals when the event is highly resource demanding and overtaxes older adults’ capacity to successfully control affective responses. In less resource-demanding situations, older adults should exhibit equal or even lower affective responsiveness compared to younger individuals, due, for example, to age-related increases in the motivation to feel good (Wrzus, Müller,

Wagner, Lindenberger, & Riediger, 2013). We tested this hypothesis with the data from the first experience-sampling wave and the subsequent 24-hour biomonitoring wave of the MMAA project (see Figure 1). During the experience-sampling data collection, 378 participants in the age range from adolescence to old age reported their momentary negative affect and occurrences of hassles on average 54 times over 3 weeks. Several months later, a subsample of 92 participants wore an ambulatory psychophysiological monitoring system for 24 hours while pursuing their daily routines and additionally completed an average of seven mobile-phone-based experience-sampling reports. Affective responsiveness was analyzed by comparing, within persons, affective states in situations without and with preceding hassles. The results supported the overpowering hypothesis (see Figure 4): When dealing with complex hassles that affected multiple life domains (i. e., situations that are highly resource demanding), older age was associated with more pronounced psychological and cardiovascular responsiveness. When dealing with circumscribed hassles that affected only one life domain (i. e., situations that

are less resource demanding), however, no age differences in psychological responding were observed, and cardiovascular responding was even less pronounced the older the participants were. These findings suggest that the ability to effectively regulate affective and cardiovascular responses to everyday hassles may be maintained into older adulthood as long as the resource demands (i. e., the complexity) of the event do not overtax the older adults' available resource capacity (Wrzus et al., 2013). Another set of analyses emphasized the temporal dimension of affective reactivity. Here, we studied reactivity and recovery processes under controlled experimental conditions using data on a stress induction experiment during the 24 hour biomonitoring wave. Standardized emotional strain was elicited in 92 participants, 14 to 83 years of age, with an adaptive social-cognitive stress task. Participants' negative affect and heart rate were measured throughout the task. The results showed no significant age differences in reactivity and recovery regarding activating (e. g., feeling nervous) and deactivating (e. g., feeling downhearted) negative affect. We found, however, that older age was associated with

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Wrzus, C., Müller, V., Wagner, G. G., Lindenberger, U., & Riediger, M. (2013). Affective and cardiovascular responding to unpleasant events from adolescence to old age: Complexity of events matters. *Developmental Psychology, 49*, 384–397. doi:10.1037/a0028325

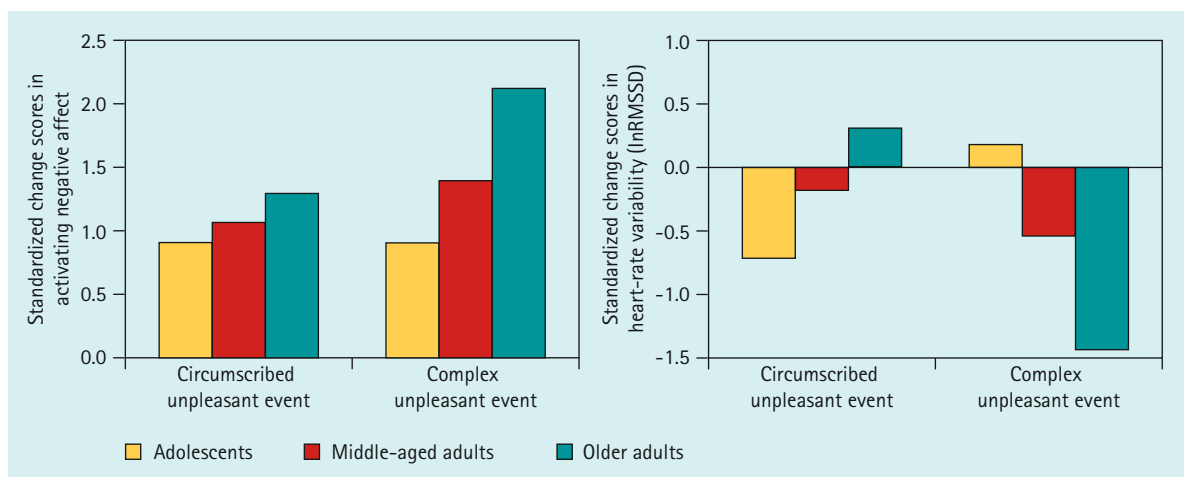


Figure 4. Age differences in psychological and physiological reactivity to adverse events depends on the complexity of the situation. Several times a day throughout 3 weeks, participants reported the occurrence of hassles and their momentary negative affect. In a separate assessment wave, participants' heart rate was continuously recorded throughout 24 hours while they pursued their normal daily routines. After experiencing circumscribed hassles that concerned only one life domain (i. e., situations that are less resource demanding), no age differences in psychological responding (increase in negative affect relative to situations without preceding hassles) were observed (left panel), and cardiovascular responding was even less pronounced the older the participants were (right panel), more negative values indicate stronger cardiovascular responding. However, when dealing with complex hassles that affected multiple life domains (i. e., with situations that are highly resource demanding), older age was associated with more pronounced responding both on the psychological (left panel) and cardiovascular (right panel) (adapted from Wrzus et al., 2013).

decreased heart-rate reactivity (i. e., smaller increases in heart rate from baseline to the stress task compared to younger individuals) as well as increased heart-rate recovery time (i. e., longer time to return to baseline heart rate following the stress task compared to younger individuals). In other words, although heart rate increased less strongly with age, it took longer to recover, that is, to return to baseline. Importantly, heart-rate reactivity and recovery during the stress task were not significantly related to heart-rate reactivity and recovery during a nonemotional physical task, suggesting that the observed age differences in heart-rate reactivity and recovery were specific to the social-cognitive stressor. Affective experiences, however, do not only fluctuate in response to unpleasant experiences, thoughts, or events. Uplifts or pleasant everyday events, such as receiving good news, also influence affective experiences by promoting greater positive affect and lower negative affect. Although researchers have posited that uplifts may buffer or reduce the aforementioned detrimental effects of hassles on emotional well-being, few studies have tested this possibility in daily life. Furthermore, buffering effects may vary with age. For example, during adolescence, affect variability is greater than in other periods of the lifespan. Thus, while adolescents may show large decreases in emotional well-being in response to hassles, they may also show large increases in response to uplifts, thereby cancelling out the negative effects of co-occurring hassles. In addition, most previous studies on emotion regulation and aging have found that older adults are more adept at avoiding negative emotional experiences relative to younger individuals, but there is limited evidence that older age is associated with optimizing positive experiences. We therefore examined age differences in buffering effects, that is, when uplifts and hassles occurred concurrently on activating (e. g., feeling angry) and deactivating negative affect (e. g., feeling downhearted) in the fourth assessment wave of the MMAA project. Buffering effects were tested by examining age-related differences in the increase in negative affect in response to hassles-only situations compared to situations whereby

uplifts and hassles were reported concurrently. Multilevel analyses revealed that there were age differences in buffering effects on deactivating negative affect, but not on activating negative affect. The interaction shows that when a hassle was reported in the absence of an uplift, there were no age differences in deactivating negative-affect reactivity (i. e., increases in deactivating negative affect in response to the hassle). In contrast, when an uplift and hassle were reported concurrently, all individuals generally showed buffering effects such that their hassle reactivity was attenuated compared to hassle situations without a co-occurring uplift. This buffering effect was less pronounced, however, with older age. In other words, older adults benefited less (i. e., exhibited smaller decreases in deactivating negative affect) when experiencing both uplifts and hassles within the same assessment period compared to younger individuals. Altogether, these findings support the notion that affective aging consists of a complex pattern of gains and losses. Across adulthood, the ability to maintain affective states in the presence of circumscribed stressors shows stability or even improvements, but older adulthood is characterized by slower recovery from physiological arousal associated with stressors, stronger affective and physiological reactivity to complex stressors, and by lesser capitalization on positive experiences when they coincide with stressors. The analyses reported so far focused on cross-sectional age differences in everyday affective reactivity, which, however, do not necessarily correspond to within-person change in reactivity over time. The finalization of the fifth longitudinal assessment wave of the MMAA project, which is currently under way, will make it possible to investigate within-person change throughout 6 years in everyday affective experiences. These longitudinal data analyses will be among our core research endeavors in the coming year and accompany initial analyses on change in hassle reactivity throughout 3.5 years, which indicated pronounced age-related differences and are described next. Greater affect reactivity to stressors is typically believed to signify poorer affect

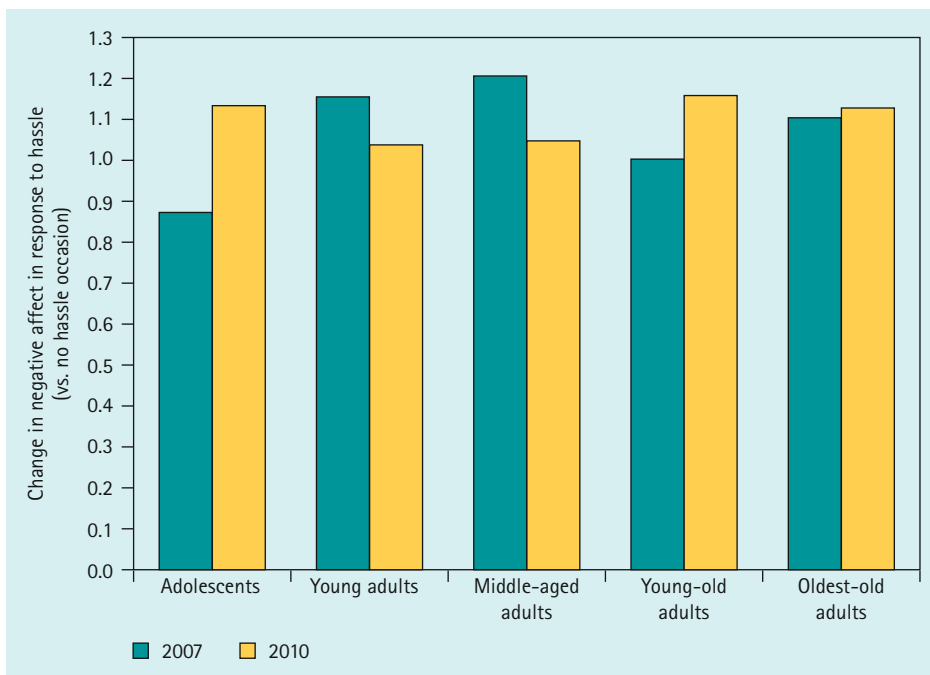


Figure 5. Age-moderated longitudinal change in negative-affect reactivity to hassles. Participants between 12 and 88 years of age reported their momentary emotional experiences and the occurrence of hassles in their daily lives twice, about 3.5 years apart. Bars represent hassle reactivity (i. e., increases in negative affect in response to a hassle, relative to occasions in which no hassles occurred). Adolescents and young-old adults exhibited increases in hassle reactivity, whereas younger and middle-aged adults showed decreases across the two assessment waves. In later life, the oldest adults showed stability in hassle reactivity over time.

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regulation, that is, poorer abilities to control one's affective reactions. Researchers have predicted that there are two periods in which emotion regulation drastically changes: (1) as adolescents transition into adulthood and (2) as individuals move from the third age to the fourth age (into the eighth decade of life and beyond). Adolescence represents a period of substantial physiological, cognitive, and social changes that are coupled with relative inexperience in coping with hassles. Together, these components contribute to highly variable emotional responses in adolescence. As individuals transition into adulthood, they gain more experience with emotion regulation and greater agentic control, which are believed to help downregulate affective reactivity to hassles. In addition, although the third age (encompassing the sixth and seventh decades of life) is associated with comparatively high levels of emotional control and stability, it is unclear whether these gains will outweigh losses, such as declines in

cognitive functioning, in late life. Few studies to date have been able to test these possibilities because they primarily relied on cross-sectional data with limited age ranges. Using longitudinal data from MMAA assessment waves during the time period from 2007 to 2010, we examined possible age differences in longitudinal change in affect reactivity to hassles throughout a period of about 3.5 years. We found that change in affect reactivity to hassles varied with baseline age. Both adolescents and young-old adults (third age) exhibited increases in negative-affect reactivity to hassles across the waves (see Figure 5). Interestingly, however, young and middle-aged adults decreased in their negative-affect reactivity to hassles across the waves, while the oldest-old adults show a pattern of stability across the waves. These findings corroborate and extend the current literature. Affect reactivity to hassles declines during early and middle adulthood, but shows increases again in the third age and stability in later life.

Core Research Team

Antje Rauers
Markus Studtmann
Michaela Riediger

Back in the Laboratory: Emotion Elicitation Using Film Clips

One advantage of using experience sampling is that it captures emotional events and responses to these events as they occur in people's natural living environments, which enhances ecological validity. A natural limitation of this method is, however, that the events people encounter in their daily lives may differ between age groups (e.g., regarding their valence, importance, or frequency). When investigating age differences in affective responding, it is therefore important to consider the type of events that people are exposed to. Following this imperative, we have been complementing the data from the MMAA project that we obtained in daily life with well-controlled experimental paradigms. In one of these studies, we conducted an experiment in which we confronted participants of different age groups with standardized emotional events in the laboratory, namely, with emotional film clips. In the following, we will exemplarily introduce two research foci within this comprehensive investigation.

Emotional Reactivity to Controlled Emotional Events

In this research, we preselected 66 emotional film clips for their potential to strongly and specifically induce one of the following emotions: joy, anger, fear, sadness, disgust, and no emotion (i.e., emotionally neutral films) as a control condition. Different from past research that investigated age differences in responses to emotional film clips, we did not restrict our sample to a narrow age range, nor did we focus on one or two target emotions or on a small number of film stimuli, as selectiveness regarding these factors may limit the generalizability of the findings. Instead, we included a broad age range from 12 to 80 years in a lifespan sample of 99 individuals and considered various target emotions, each of which were represented by an average of 11 film clips. The results can be seen in Figure 6. Affective responses increased with age for most emotions, namely, for joy, fear, sadness, and anger, with only minor differences across individual films for a given target emotion. In contrast, there were no age differences in responses

to disgusting and neutral films—again with only minor differences across individual films. Importantly, no emotion evinced an age-related decrease in emotional responding. In essence, these findings suggest that controlled exposure to emotional events involves an age-related increase in emotional responding for most emotions. These results seem incompatible with the theoretical notion that older adults are more adept in general at regulating their responses to emotional events. In contrast, the present results provide preliminary support for theoretical positions maintaining that affective responses should increase with age if a given emotional event is sufficiently intense and cannot be avoided. These findings may furthermore imply that it can be adaptive to avoid intense emotional stressors in old age, as one's regulatory capacities in the face of intense events may become increasingly limited.

That's Not Funny! Enjoyment of Others' Misfortunes Decreases Across the Adult Lifespan

The emotions of joy, anger, sadness, disgust, and fear from the research example above are among a group of emotions that some psychologists have considered the "basic emotions." Whereas there is an ongoing debate regarding the criteria that qualify an emotion as "basic," some researchers use this term to acknowledge that expressions of these emotions occur very early in ontogeny and have been observed in multiple cultures around the world. Furthermore, these emotions may be understood as responses to a specific appraisal (e.g., sadness typically accompanies one's realization of a loss without any hope for amendment). In contrast, researchers have emphasized that some affective responses are elicited through more heterogeneous pathways, with one example being amusement. This emotional response typically involves an enjoyable tension arising from some form of cognitive incongruence. However, the types of incongruences people respond to vary considerably across individuals. Past research has related these individual differences to people's cultural background, their cognitive capacities, or the salience of a topic. In this research example, we investigated the role

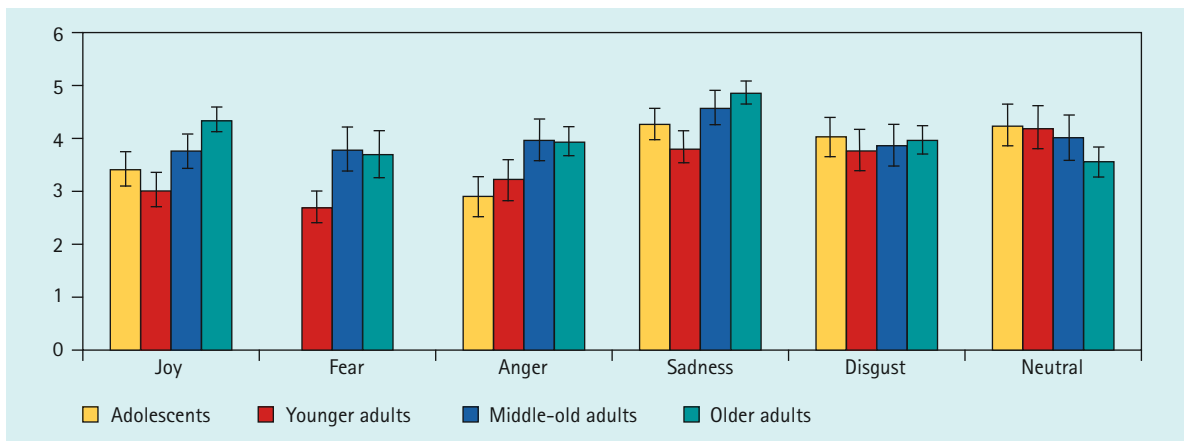


Figure 6. For emotional films eliciting joy, fear, anger, or sadness, subjective-affective responses were stronger with age, whereas responses to disgusting or neutral films were age invariant. Participants aged 12 to 80 years rated their subjective responses to 66 emotional film clips. (Adolescents did not rate fear stimuli.) Bars show participants' mean ratings on the target emotion in four different age groups, averaged across all films for a given target emotion. Error bars show two standard errors from estimated subsample means. Participants' stronger responses with increasing age, as evident for most emotions, support the theoretical notion that older adults will respond stronger to intense, emotional stimuli if those are held constant across participants. Age differences in affective responses to events in everyday life, in contrast, may diverge from the reported pattern, as individuals differ regarding the events that they are exposed to.

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of values for people's responses to amusing stimuli. We assumed that age differences in amusement could be understood in terms of age differences in values. Amusement has been suggested to depend on a delicate balance between tension (e.g., incongruence) and relief (e.g., resolution of the incongruence). If people are confronted with threats to particularly salient values, this balance may be shifted toward uncomfortable levels of tension, which counteracts the experience of amusement. Here, we focused on values regarding two assets, namely, moral and physical integrity. Moral integrity may become increasingly valued with age as people develop a growing sense of generativity—a motivation to give to subsequent generations and pass on values and morals. Likewise, physical integrity may become increasingly valued as age-related frailty brings about more serious implications of physical injuries (e.g., resulting from a fall). In sum, older people may value moral and physical integrity more strongly than younger people. We therefore hypothesized that, with age, stimuli involving threats to moral or physical integrity—that is, films involving potential psychological or physiological harm—would be appraised with lessened amusement.

To investigate this hypothesis, we used data from two independent lifespan samples. In a first step, we conducted a rating study with the aim to obtain a group of film clips that involved varying degrees of threat to moral and physical integrity—in short, films that varied on the dimension of harm. We used 12 film clips, preselected for their potential to elicit amusement, and showed them to a sample of 143 participants aged 10 to 84 years. Directly after having watched each film, participants responded to five items measuring the extent to which each film involved threats to moral values (e.g., "someone acted mean") or physical integrity (e.g., "someone could have got hurt"), using a scale from zero to six. Averaging across all items and rating-study participants, we obtained a measure of perceived harm for each film. This measure was then used to predict experiences of amusement in a second, independent lifespan sample. In a next step, we presented the same 12 film clips to the lifespan sample introduced earlier (99 participants aged 12 to 80 years). Directly after having watched each film, participants rated the intensity of their amusement on a scale from zero to six. Results supported our prediction (see Figure 7): Whereas younger participants' amusement was independent of

Core Research Team

Kathrin Klipker
Cornelia Wrzus
Antje Rauers
Michaela Riediger

Key Reference

Riediger, M., & Klipker, K. (2014). Emotion regulation in adolescence. In J. J. Gross (Ed.), *Handbook of emotion regulation* (2nd ed., pp. 187–202). New York: Guilford Press.

the harm involved by the films, older participants' amusement was lower for harmful films than for harmless films. These results provide support for the notion that individual differences in emotional responding may be best understood when considering both characteristics of the person and characteristics of the stimulus or situation. Individual differences in people's emotional responses were not explained by participants' age alone, nor by the harm implied by the stimulus alone. Instead, the data pattern derived from an interaction of the two characteristics. Furthermore, the study introduces a potential explanatory mechanism for the observed effect: Threats to the people's values may counteract the experience of amusement. Future research needs to investigate if this mechanism is also true for additional values that were not in the focus of the present research example.

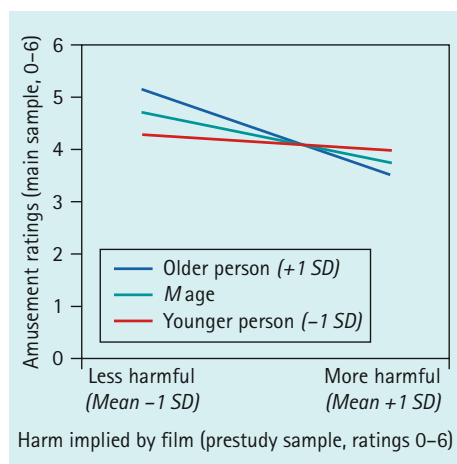


Figure 7. Participants' emotional responses to amusing films depended on the interplay of participants' age and the harmfulness of a given film clip. A lifespan sample aged 10 to 84 years watched 12 amusing film clips and rated them regarding their harmfulness—that is, the degree to which a protagonist in the film was exposed to either moral violations, physical harm, or both. A different lifespan sample aged 12 to 80 years then rated their amusement as they watched the same films. Estimates from multilevel regression showed that harmful films elicited less amusement than harmless films—but not for everybody: The older the participant, the more his or her amusement was diminished if a film stimulus involved moral violations, physical harm, or both. These results may be understood in light of past research suggesting that both moral and physical integrity, which were threatened by some of the films, become increasingly valued across the adult lifespan.

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Up One Minute, Down the Next: Affective Variability Across Adolescence

Compared to late childhood and adulthood, adolescence is a developmental period of enhanced affective instability, that is, of more rapidly changing affective experiences (Riediger & Klipker, 2014). There is, however, also substantial variation between adolescents regarding their affective instability. Lay views often attribute these observations to hormonal changes during adolescence. Empirical evidence, however, shows that hormonal changes alone cannot explain the unique emotional lives of adolescents. Indeed, relatively little is known to date about the factors that contribute to the typical increase in affective variability in adolescence and to interindividual differences therein. We conducted a longitudinal study to provide new insights into this area of research (Dissertation Kathrin Klipker). The objective of this project is to investigate the proposition that a temporary increase in affective variability in adolescence results from a transient developmental imbalance between pubertal and cognitive development, rather than from one or the other influence alone.

Pubertal development (i.e., the bodily transition from being a child to being an adult) is caused by changes in the concentration of steroid hormones. Pronounced increases in the levels of steroid hormone concentrations occur particularly in early puberty and are accompanied by the emergence of diurnal patterns of steroid hormone concentrations. These hormonal changes are thought to have an activating effect on the central nervous system, especially in affect-relevant brain regions. Individuals, however, are not only passive recipients of affect-relevant signals from the brain. Affective experiences can often be moderated and controlled (i.e., regulated) to some extent by the individual. Many affect-regulation strategies (e.g., cognitive disengagement, behavioral inhibition, or attentional deployment) draw on cognitive-control processes, which develop remarkably throughout childhood and adolescence. We therefore expected that adolescents who show large changes in hormone concentration and diurnal rhythms, but have not yet fully

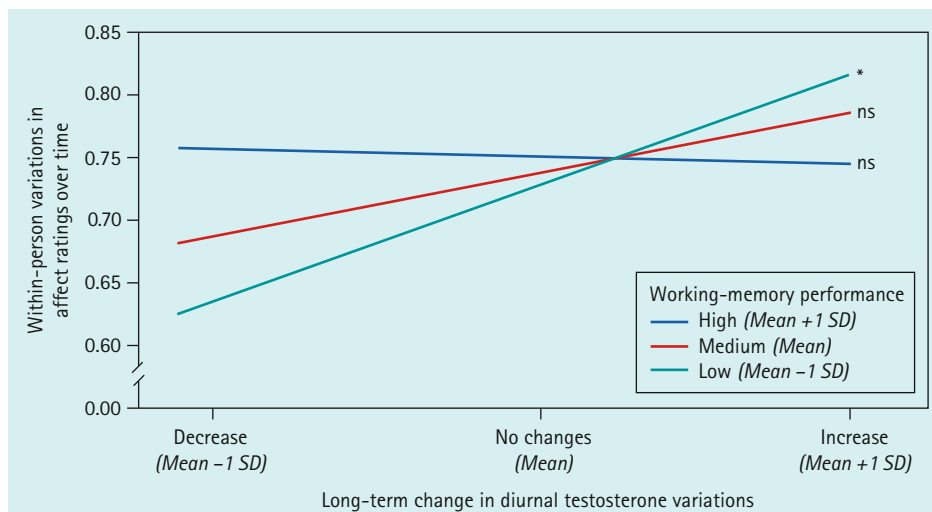


Figure 8. Change in diurnal testosterone variations predicts affect variability only in adolescents with low working-memory capacity. Male participants aged 10 to 20 years provided eight saliva samples for the analyses of testosterone concentrations, each on two measurement occasions about 9 months apart. Their working-memory capacity was assessed with an extensive battery during the second occasion. Affect variability was assessed throughout 2 weeks and as participants pursued their normal daily routines, using mobile-phone-based experience sampling. Results indicate that an increase in diurnal testosterone variation predicted higher affective variability only in participants with low working-memory capacity. This finding is consistent with the idea that a temporary increase in affective variability in some adolescents is associated with an imbalance between hormonal and cognitive development.

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developed the cognitive control capacity to regulate their increasing affective responsiveness, should show high variability in affective experiences, whereas this should not be the case to the same extent for adolescents with more developed cognitive control capacities. To investigate this prediction, we conducted a longitudinal project with two measurement waves, 8 months apart. On both occasions, 148 male participants aged 10 to 20 years provided, among other things, eight saliva samples for the analysis of testosterone concentrations. During the second measurement wave, participants also worked on a battery of working-memory tasks and took part in a mobile-phone-based experience-sampling phase. Over a period of 2 weeks, participants provided on average 46 reports of their momentary affective experiences. Derivative estimates of participants' affect ratings (i. e., slope of change) were used as a measure for affect variability.

In line with our predictions, we found that an increase in diurnal testosterone fluctuations during the study interval was related to higher affective variability only in adolescents

with low, but not in adolescents with high working-memory capacities (see Figure 8). This was the case irrespective of participants' age. Results are robust to controlling for several demographic (e. g. type of school, parents' socioeconomic status) and social (e. g. predictability of activities, interaction partners, and locations) control variables. Taken together, this study not only replicates the available empirical evidence of a relation between puberty and emotional experiences, but further differentiates between several developmental processes within puberty: The investigation of the joint contribution of an individual's hormonal and cognitive development allows addressing the question of large individual variations within adolescence.

Tune Yourself In: Age Differences in Music Preferences in an Affectively Relevant Situation

Results from the MMAA study summarized above had shown pronounced age-related differences in self-reported regulatory motivations, with older adults reporting more frequently prohedonic motivations and

Core Research Team

Michaela Riediger
Cornelia Wrzus
Simon Frisch
 (Diploma Student)

adolescents more frequently contra-hedonic motivations than the other age groups. In these analyses, however, we had exclusively focused on the valence dimension of affective experiences, that is, on how pleasant or unpleasant they are. However, the arousal dimension—how activating or deactivating affective experiences are—may be equally important for understanding age differences in affect-regulation motivation because an age-related decrease of physiological flexibility makes recovery from activated states more difficult in older adulthood. In addition, our reliance on self-reported affect-regulation motivation in the MMAA study entails the possibility of response biases. We addressed these limitations in this study by observing participants' behavior in an

affectively relevant situation with regard to both the valence and the arousal dimensions of regulatory preferences, choosing music listening as an experimental paradigm. Music listening was well suited for our study aims because the affective nature of a given music piece can be characterized with regard to its valence and arousal, and it can elicit corresponding affective experiences in the listener. In a first step of this investigation, we developed an age-fair music-browsing paradigm as a means to observe people's regulatory preferences in an affectively relevant situation. We asked 50 participants aged 12 to 74 years to rate 471 preselected songs from different genres on various dimensions, including valence and arousal. Based on these ratings, we selected 128 music pieces with unambiguous

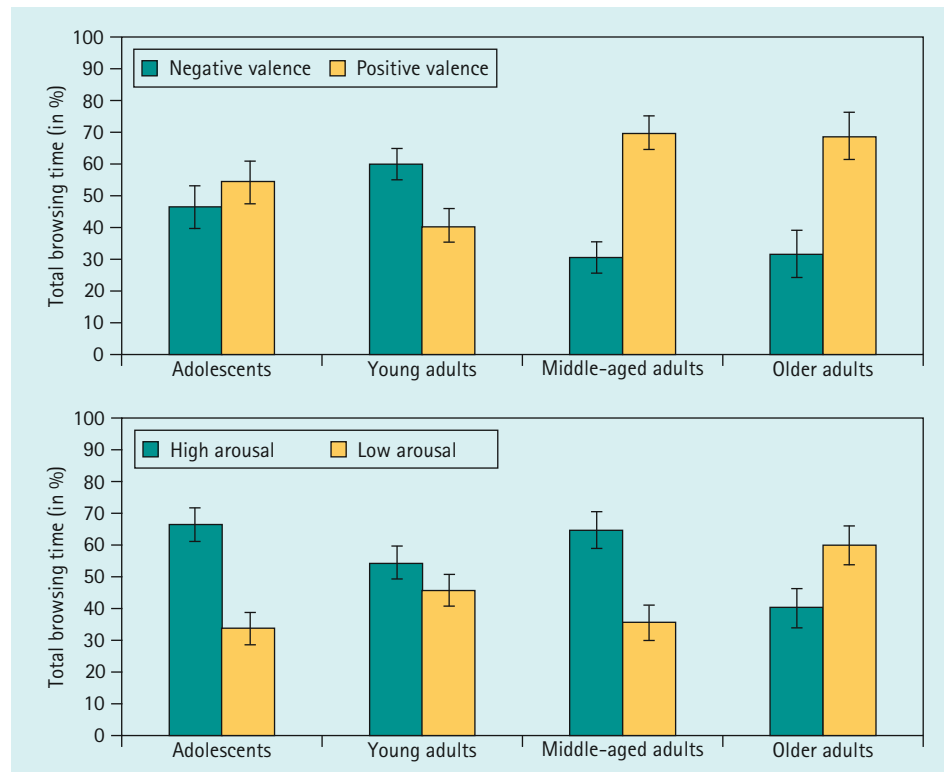


Figure 9. Age differences in music preferences in an affectively relevant situation. Individuals from different age groups freely browsed music pieces varying in valence and arousal while expecting to engage soon in a discussion of a difference in opinion with a stranger. Middle-aged and older adults listened longer to positively than to negatively valenced music (upper panel). They differed from each other, however, in their arousal preferences (lower panel): Middle-aged adults listened longer to high-arousing music than to low-arousing music. Older adults listened longer to low-arousing music than the other age groups. These findings suggest that shifts in valence preferences may occur earlier throughout the adult lifespan than shifts in arousal preferences. Error bars: ± 1 standard error.

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and relatively age-homogeneous valence and arousal ratings, making sure that the selection was comparable across different genres. We then programmed a music browser that allows participants to freely browse through this selection of songs, listening to each of them for as long or short as they like, and records their browsing behavior.

We expected to find an age-related increase in the preference for positively valenced and for calm, relaxing music in affectively relevant situations. We investigated this prediction in a sample of 73 participants from four age groups: adolescents, young, middle-aged, and older adults. We created an affectively relevant situation by making participants believe that they were about to discuss a difference in opinion with a stranger. We then told participants that their interaction partner was not yet ready for the discussion and asked them to participate in an allegedly unrelated study on listening preferences to bridge the time to the discussion. Participants freely browsed our music selection for

10 minutes and we recorded their browsing behavior.

Consistent with our prediction, we found a clear preference for positively valenced music in middle-aged and older adults (see Figure 9, upper panel). The preference pattern, however, was different with regard to the arousal dimension of music pieces. Adolescents and middle-aged adults showed a clear preference for high-arousing music, whereas older adults spent less time listening to high-arousing music and more time listening to low-arousing music than the other age groups (see Figure 9, lower panel).

Taken together, this study further confirmed that age differences in regulatory preferences are not only evident in self-report but also in what people actually do in an affectively relevant situation, and that it is important to consider both the valence and the arousal dimension of regulatory preferences. It also suggests that shifts in valence preferences may occur earlier in the adult lifespan than shifts in arousal preferences.

Research Emphasis 2: Age-Related Differences in Affective Competencies

The second emphasis of our research is on age-related differences in abilities related to understanding and managing emotional aspects of life. Between 2011 and 2013, we focused much of our respective work on processes related to affect communication. Here, we are interested in both how affective experiences are expressed by individuals of different age groups and how these expressions are recognized by other people of various ages.

While empirical evidence on age-related differences in affect expressions is still rare, several investigations are available that suggest that the ability to read other people's affective expressions declines with age throughout adulthood (e.g., Riediger, Voelkle, Ebner, & Lindenberger, 2011). The reasons for this apparent age-related decline, however, are not yet well understood. Surprisingly, age-related declines in fluid-cognitive functioning and face perception could not account for these findings. To date, however, adult age differences in the ability to identify affective expressions have most frequently been investigated using photographs depicting faces of persons posing prototypical expressions of highly intense emotions. This "traditional" paradigm has two important

methodological shortcomings that we sought to address in several recent studies. One limitation is a *lack of age fairness* of most studies, which used expressions of younger or middle-aged, but not older, adults as stimulus material. The second concern pertains to the fact that the traditional paradigm is quite different from affect-recognition demands in daily-life contexts and thus lacks *ecological validity*. Below, we elucidate our recent empirical attempts to address these concerns. We first sketch out a series of studies that attempted to enhance ecological validity by investigating age-related differences in identifying different types of smiles. Subsequently, we describe several studies on different aspects of spontaneous affective communication in social relationships.

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Core Research Team

Markus Studtmann
Antje Rauers
Michaela Riediger
Andrea Westphal
(Diploma Student)

No Smile Like the Other—Adult Age Differences in Reading Smiles

Our first approach toward enhancing ecological validity involved smiles instead of posed expressions of intense basic emotions. Smiles are facial displays well suited for our purposes because they are subtle expressions of high ecological relevance that can be accompanied by different emotional experiences: People smile when they experience positive emotions, for example, when they are amused or happy. They also smile to conform to social conventions, for example, to be polite, even when not experiencing any particular emotions. People also occasionally smile while experiencing negative feelings, for example, during social conflicts when they want to appease their interaction partner.

We were interested in whether younger and older adults differ in how well they are able to identify different emotional experiences accompanying smiles. Based on the assumption that interpreting different types of smiles is a more ecologically valid task than interpreting posed facial expressions in the traditional paradigm, and as such allows older adults to draw on their accumulated experiences in understanding other people's expressions, we expected a performance advantage of older as compared to younger adults in understanding smile expressions.

To investigate this prediction, we produced videos of positive, negative, and nonemotional smiles. Positive and nonemotional smiles were elicited from 42 younger (20–30 years of age) and 48 older adults (70–80 years of age). Positive smiles were spontaneously shown while watching amusing video clips and cartoons. Nonemotional smiles were elicited by asking participants to smile. Together, more than 2,000 smile episodes were videotaped. Participants reported their feelings for each of these episodes. We selected positive smiles that had been accompanied by intense amusement and no other feelings, and nonemotional smile episodes that had not been accompanied by particular emotions. In addition, we extracted negative smile episodes from video footage of young adults who were the target of unfair accusations during an experiment conducted by Weber and Wiedig-Allison at the Ernst Moritz

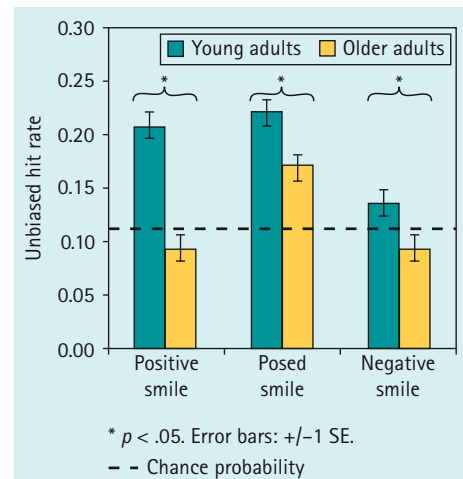


Figure 10. Younger adults are better in reading smiles than older adults. Younger and older adults rated short video clips of smile expressions that were shown while the smiling person either felt amused while watching a funny videoclip, felt upset while being the target of an unfair accusation, or did not feel any particularly strong emotion while being asked to pose a smile. Younger adults were more accurate than older adults in identifying emotional experiences accompanying positive, nonemotional, and negative smiles. Error bars: ± 1 standard error.

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Arndt University of Greifswald. These negative smiles had been accompanied by intense anger or other negative emotions.

In a first study, we presented 48 smile videos (16 per category, all of younger adults) to 48 younger (20–30 years of age) and 52 older (70–80 years of age) participants. Participants were asked to indicate which emotional experience they thought had accompanied the smile (positive feelings, negative feelings, or no particularly intense feelings).

Contrary to our predictions, older adults' emotion-recognition accuracy did not profit from the more ecologically valid smile paradigm. As in the traditional paradigm, younger adults were more accurate in identifying emotional experiences accompanying smiles than older adults (see Figure 10). In fact, older adults' recognition accuracy for positive and negative smile videos was not better than chance. Furthermore, older adults were less likely to attribute positive emotions to smiles, but more likely to assume that a given smile was posed than younger adults. This finding was unexpected as it is not in line with

theoretical claims that older adults are more motivated to attend to and process positive information.

In a second study, we investigated whether older adults' accuracy in reading smiles profits when the smiling persons stem from their own group as compared to a younger age group. We presented positive and nonemotional smiles of younger and older adults to 48 young (20–30 years of age) and 49 older (70–80 years of age) participants. Results indeed confirmed an own-age advantage for older (but not younger) participants: Older participants could identify the accompanying emotional states best when the smiling persons were older adults as well. Although this selective gain in recognition accuracy attenuated the performance difference between younger and older participants when reading older adults' smiles, the overall pattern of age differences remained. Even when the smiling persons were older adults, younger adults' accuracy of identifying emotional experiences accompanying smiles was higher than that of older adults. This replicates the findings from our earlier studies.

Taken together, this line of research replicated that younger adults attribute affective states more accurately to emotional expressions than older adults, even after enhancing the ecological validity compared to the previously used traditional paradigm. Also, the smiles paradigm, however, differs from affect-recognition demands that people encounter in their daily lives. It employs isolated and monosensory cues, while emotional information in everyday life is often multisensory and embedded in a communicatory context. Based on these considerations, our further attempts toward enhancing ecological validity pertained to affective competencies as evident in authentic interactions and social relationships.

Everyday Affective Competencies in Romantic Partnerships

Extending our earlier research on mutual understanding among dyads of various age groups (Rauers, Riediger, Schmiedek, & Lindenberger, 2011; Riediger & Rauers, 2010), we have been conducting a longitudinal multimethod investigation of affective competencies in social relationships. This

project focuses on romantic partnerships as a particularly common social context across adulthood and has two core foci: First, we investigated age-related differences in affective competencies—both in the couples' daily lives and during interactions in controlled laboratory contexts. Second, we investigated the implications of such affective competencies for individual and relationship development in early and late adulthood. The project includes two multimethodological assessment waves. The first wave used dyadic experience sampling as a means to assess emotion understanding and affect-related interpersonal dynamics in younger and older couple's daily-life contexts, which we complemented by experimental paradigms and self-report data. The second wave comprised experimental paradigms, observational measures, and self-report data. Here, the primary focus was on age differences in the verbal and nonverbal communication of affective states. In the following, we describe one research example from this project in more detail, focusing on age differences in the ability to correctly judge how one's partner is feeling in daily life. When judging another person's current emotions, people do not exclusively rely on that person's emotional expressions. People also use additional information, such as knowledge about a given situation and about the particular person. We assumed that this knowledge is more robust to aging than the ability to read emotional expressions—meaning that conventional laboratory tasks may have systematically underestimated older adults' empathic competencies. To investigate this, we assessed empathic accuracy in younger and older couples' daily-life contexts (Rauers, Blanke, & Riediger, 2013). We used the experience-sampling method to compare two everyday scenarios: empathic judgments while the partners were spending time together and situations in which the partners were temporarily apart during their daily routines. In both situations, people can use their knowledge about the partner to judge his or her current affect (e.g., they may know about the partner's typical mood at a particular time of day or the partner's typical mood while engaging in a specific activity). We assumed

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Core Research Team

*Antje Rauers
Michaela Riediger
Elisabeth Blanke*

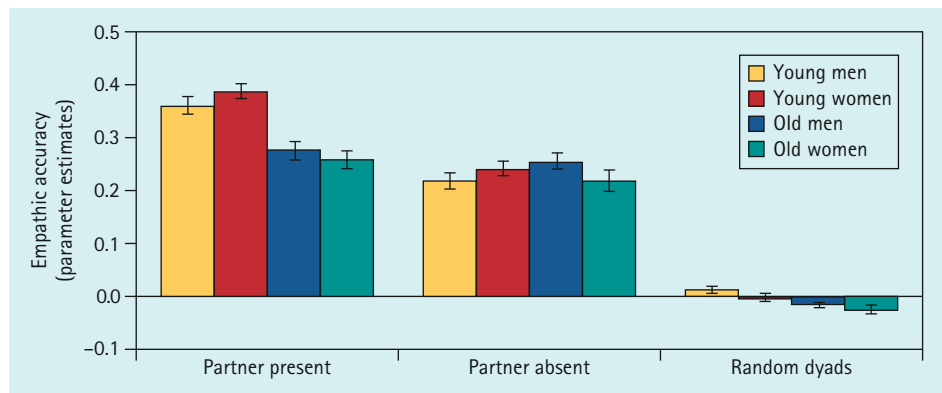


Figure 11. Age differences in empathic accuracy—the ability to correctly judge another person’s current feelings—depend on the presence or absence of the partner. Experience-sampling data were obtained from cohabitating couples’ daily lives. Participants simultaneously rated their own and their partner’s current affect. Bars show multilevel-model estimates of empathic accuracy, separately for younger and older men and women, measured as the correspondence of participants’ ratings of their partners with the partners’ actual self-reports. Higher bars indicate higher empathic accuracy across all measurement occasions. Younger adults were more accurate in rating their partner’s current affect when the partner was present. When the partner was absent, however, younger and older adults’ accuracy in rating their partner’s affect was comparable, and both age groups’ ratings were better than chance. Error bars: ± 2 standard errors.

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that such knowledge would be equally available to younger and older couples. However, additional sensory cues about the partner’s current affect (e.g., facial or verbal information) are available when the partner is present. In these situations, people may thus use sensory cues to adjust their empathic judgments. In contrast, during a person’s absence, empathic judgments needed to rely exclusively on knowledge acquired before the time of the judgment. Sensory-information processing has been shown to decline with age. We therefore hypothesized that, when their partners were present, younger adults would be more accurate than older adults. However, we expected younger adults’ advantage over older adults to decrease during the partners’ absence. In short, we expected to find greater age differences when the partner was present than when the partner was absent. To investigate these predictions, we used the mobile-phone-based experience-sampling technology developed in the MMAA project. The sample consisted of 50 younger (20–30 years of age) and 50 older (70–80 years of age) cohabitating, heterosexual couples (i.e., 200 individuals). Participants provided 87 experience samples on average while pursuing their normal daily routines. Measurement

occasions for both partners of a couple were scheduled simultaneously. Among other questions, participants were asked to report their own momentary affective experiences (self-ratings) and to judge their partners’ momentary affective experiences (judgments). Self-ratings and judgments were made for four positive and four negative affect facets each (happy, enthusiastic, balanced, content, angry, downcast, disappointed, and anxious). Correspondence between participants’ judgments of their partners’ affect and the respective partners’ self-rated current affect was used as an indicator of participants’ insight into their partners’ momentary subjective experience. That is, we used the partners’ own self-rating as criterion for empathic accuracy. Consistent with our assumptions, age differences in empathic accuracy depended on the presence or absence of the partner. During the partner’s presence, younger adults’ empathic accuracy was higher than that of older adults. During the partner’s momentary absence, however, there were no age differences (see Figure 11). Importantly, empathic accuracy when the partner was absent was significantly better than chance for both age groups—both when the partner was present and when he or she was absent.

This is also illustrated by an additional analysis for which we randomly swapped partners within age groups, thus creating artificial age-homogeneous, cross-gender dyads. In these random dyads, there was no empathic accuracy (see Figure 11). This indicates that the partners did not just engage in random guessing when their partner was absent, nor did they merely use stereotypes about an average person's fluctuations in affective states across the day. Instead, people's specific knowledge about their partners served as a valid basis for empathic judgments.

In sum, our findings show that people can judge a familiar person's current affect without using any sensory information (such as facial emotions or verbal statements) and exclusively based on their knowledge about that person. This important ability contributing to understanding others' feelings should be considered more thoroughly in future research, which has mostly focused on the ability to interpret others' emotional expressions. Moreover, our results suggest that such knowledge is an important resource

that remains available well into late adulthood. In daily life, older adults' empathic competencies may thus be better than would be expected from their performance in most conventional laboratory emotion-recognition tasks.

Nice to Meet You—Empathic Accuracy and Social Outcomes in Zero-Acquaintance Dyads

Empathic skills are important for an individual's adjustment in everyday life, especially for the success of his or her social interactions. For example, children who are better at knowing the thoughts and feelings of others have been found to have better peer relationships; and adults who are better able to read the emotions of others are known to report higher satisfaction in their romantic relationships. There is, however, only little research concerning the association between empathic skills and socioemotional adjustment in older age groups. The purpose of the ongoing dissertation project by Elisabeth Blanke, therefore, is to fill in this void by investigating the role of empathic accuracy

Core Research Team

Elisabeth Blanke
Antje Rauer
Michaela Riediger

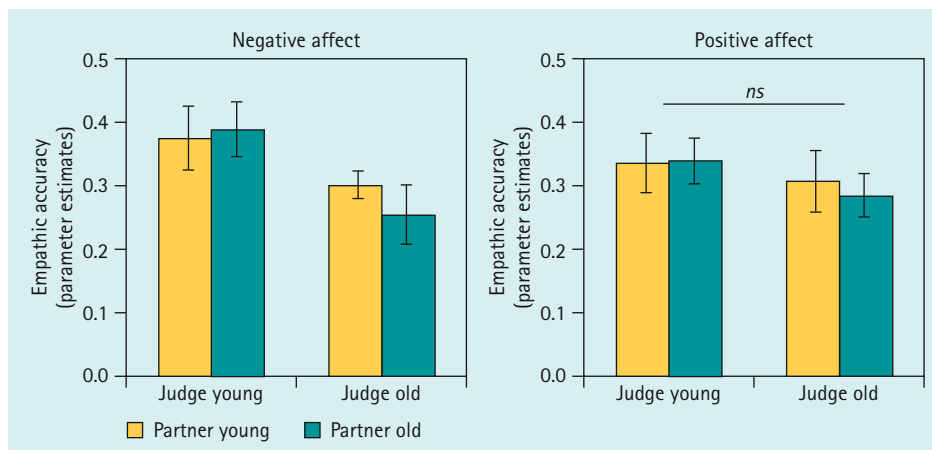


Figure 12. Younger women were better than older women in judging negative—but not positive—feelings of an unacquainted female interaction partner. Unacquainted younger and older female participants had a videotaped conversation with a partner from either their own or the other age group. Participants watched the videotape afterward and rated their own affect and the assumed affect of the interaction partner during the conversation at eight time points. Bars show multilevel-model estimates of empathic accuracy (the ability to judge other people's feelings) separately for younger and older judges and partners. The left panel represents empathic accuracy for negative, the right panel for positive affect. Empathic accuracy is measured as the correspondence of participants' ratings of their partners with the partners' actual self-reports. Higher bars indicate higher empathic accuracy across all measurement occasions. Only for negative, but not for positive, affect were younger women more accurate than older women in judging their interaction partners' affect. The age of their partners did not influence empathic accuracy. Error bars: +/-2 standard errors.

between strangers for social adjustment in young and old adults in an ecologically valid context.

We invited 208 young (20–31 years of age) and old (69–80 years of age) women to our laboratory and paired the women, who did not know each other before, in 104 age-homogeneous or age-heterogeneous dyads. Participants engaged in a conversation with each other in which they discussed recent personal emotional events, one positive and one negative. Among other things, both partners evaluated how much they liked the conversation. Then, they were asked to review the video twice and to report their own and their partner's inferred feelings during the conversation at eight time points, respectively. By comparing the self- and other-provided emotion ratings, we yielded a measure of empathic accuracy.

First findings from this study again demonstrate age differences in the ability to infer the interaction partner's affect, but only for negative and not for positive feelings: Older women were less accurate than younger women in judging their interaction partners' negative affect, but did not differ reliably from younger women with regard to their empathic accuracy regarding positive affect (see Figure 12). This might be due to the fact that positive emotions are highly socially desirable and therefore may be more readily displayed and more easily recognized. It is also possible that older adults were less motivated to infer the negative feelings of their partners. In addition, empathic accuracy in this study was associated with the perceived quality of the social interaction. Participants reported to have liked the conversation more the higher their empathic accuracy was, and this was the case irrespective of participants' age and of the valence of the evaluated affect facets.

These results support the assumption that empathic accuracy in a social interaction is associated with perceptions of the social quality of this interaction. In future analyses, we will investigate associations of empathic accuracy with self- and other-reported measures of socioemotional adjustment.

Outlook: Ongoing and Future Research

One emphasis in our ongoing and future research will be to further analyze, also in collaboration with other researchers at the Institute, the rich longitudinal data set of the MMAA project. These analyses will address a variety of research questions regarding age-related differences in affective processes and their associations with cognitive, motivational, and physiological processes. A primary focus of these analyses will be on analyses of within-person change over time and on the predictive value of affective experiences and processes assessed for the later assessed longer term developmental adaptation (as indicated, e.g., by changes in health, social integration, or educational or professional adjustment), and of possible age-related differences therein.

We also plan to extend our research on music preferences in different age groups and on the effectiveness of music listening as an affect-regulatory strategy. In addition, we are also currently investigating, in cooperation with the MPI for Empirical Esthetics, possible age-related differences in associations between objective music characteristics (e.g., regarding mode, tempo, etc.) and subjective perceptions and listening preferences by lay and expert listeners.

Another ongoing project addresses questions regarding age-related differences in interpersonal affect dynamics. For example, are romantic partners' affective responses to daily uplifts and hassles interdependent? Are there feedback loops between romantic partners' affective experiences, and do they play a role in interpersonal affect regulation within couples? In cooperation with the University of Leuven (KU Leuven) and the Kyoto University, we are also planning to investigate possible dissimilarities in these phenomena between Germany and Japan, two cultures with profound differences in desired affective experiences. Finally, we will also continue our investigation on social implications of age-related differences in affective competencies and, in particular, in empathic accuracy. We will explore, for example, the mechanisms by which empathic accuracy influences social outcomes in different age groups.

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