

Beliefs About Behavior Account for Age Differences in the Correspondence Bias

Jennifer Tehan Stanley and Fredda Blanchard-Fields

School of Psychology, Georgia Institute of Technology, Atlanta.

Objectives. Older adults tend to exhibit the correspondence bias to a greater extent than young adults. The current study examined whether these age differences are a function of the degree to which an individual subscribes to a lay theory of attitude–behavior consistency.

Methods. First, participants responded to questions regarding their beliefs about attitude–behavior consistency. Approximately 2 weeks later, 144 (67 young adults and 77 older adults) participants completed the correspondence bias task.

Results. As expected, older adults were more biased than young adults. Analyses revealed that the degree to which an individual holds attitude–behavior consistency beliefs in the dishonesty domain accounted for age-related differences in the correspondence bias.

Discussion. The results of this study suggest that age differences in the correspondence bias task are in part driven by older adults holding stronger attitude–behavior consistency beliefs than young adults.

Key Words: Age—Beliefs—Correspondence bias—Individual differences—Social judgments.

THE “correspondence bias” is a robust phenomenon in the social psychology literature that occurs when a person’s behavior is attributed to a dispositional cause without appropriate weighting of situational forces (Gilbert & Malone, 1995). This tendency, or bias, is found even when strong situational forces for the behavior are present (see Gilbert & Malone, 1995 for a review). The correspondence bias is typically studied by employing the attitude attribution paradigm (Jones & Harris, 1967), in which participants read an essay and are told that the author was instructed to write in a specific direction (i.e., for or against a controversial social issue). When asked to rate the writer’s own attitude on the topic of the essay, participants consistently align their judgments with the direction of the essay. That is, participants tend to believe that the opinion expressed in the essay corresponds with the writer’s true attitude despite the writer being situationally constrained to write the essay in that direction. This phenomenon has been replicated in many studies (e.g., Blanchard-Fields & Horhota, 2005; Choi & Nisbett, 1998; Follett & Hess, 2002; Lord, Scott, Pugh, & Desforges, 1997).

The tendency to make dispositional judgments is greater as we grow older, at least in some content domains (Blanchard-Fields, 1994; Blanchard-Fields & Beatty, 2005). For example, in the relationship domain, older adults are more likely to blame a character in a story for a negative outcome rather than the pressures of the situation (Blanchard-Fields & Beatty, 2005). In accordance with these findings, older adults endorse more extreme dispositional inferences than young adults when committing the correspondence bias (Blanchard-Fields & Horhota, 2005;

Follett & Hess, 2002; Horhota & Blanchard-Fields, 2006; Mienaltowski & Blanchard-Fields, 2005).

An age-related increase in the tendency to discount situational factors is important to understand. Why are older adults more extreme in their judgments and under what conditions is this adaptive versus maladaptive? Older adults might be more extreme in their attributions because they tend to rely on heuristics, or cognitive shortcuts, to a greater degree than young adults when making social judgments (Chen & Blanchard-Fields, 2000; Hess, McGee, Woodburn, & Bolstad, 1998; Klaczynski & Robinson, 2000). It is suggested that older adults are more apt to rely on heuristics because they are either unable or unwilling to expend their more limited cognitive resources to effortfully process the task (Gigerenzer, 2003; see Salthouse, 1996 for a description of cognitive resources that decline with age).

According to one influential model of attributional processing, there are three stages to making an attribution: categorization, characterization, and correction (Gilbert, Pelham, & Krull, 1988). Gilbert and colleagues (1988) maintain that the correction stage is the most effortful, or least automatic, of the three stages. In support of this assertion, dispositional attributions are made more quickly and effortlessly than situational attributions (Gilbert, McNulty, Giuliano, & Benson, 1992; Lupfer, Clark, & Hutcherson, 1990; Osborne & Gilbert, 1992). Thus, one possibility is that older adults tend to make stronger dispositional attributions than young adults because they are unable to devote the necessary cognitive resources to correct initial dispositional attributions. If this is the primary underlying cause for age differences in the correspondence bias, we

would expect age differences in cognitive abilities to be strongly related to age differences in the correspondence bias.

A second possible explanation is that individual differences in cognitive style might account for stronger dispositional attributions by older adults. For example, among young adults, high attributional complexity is related to less bias (Devine, 1989). A person who is high in attributional complexity considers many different possible causes for behavior (Fletcher, Danilovics, Fernandez, Peterson, & Reeder, 1986). Thus, if older adults are less motivated (i.e., less willing) than young adults to consider several possible causes for a behavior, they may be less likely to correct their initial strong dispositional attributions. Although young and older adults do not systematically exhibit different mean levels of attributional complexity, there is increased variability in attributional complexity scores among older adults (Follett & Hess, 2002). Recent work has found that differences in attributional complexity moderate age differences in the correspondence bias (Horhota & Blanchard-Fields, 2006).

Similar to cognitive style, but perhaps more specific to causal attributions, a person's lay theory (or schema) on trait-behavior relations might relate to individual differences in the correspondence bias. Specifically, individuals who believe that people generally behave consistently with their attitudes might be more likely to commit the correspondence bias (Reeder, 1993). Most people do expect others' behavior to be consistent with their attitudes (Miller, Ashton, & Mishal, 1990), which suggests that lay theories on attitude-behavior relations may in part account for the correspondence bias phenomenon among young adults. Might it be that older adults subscribe to stronger or more rigid lay theories of attitude-behavior consistency? If indeed this is the case, maybe the strength of this belief accounts for age differences in the correspondence bias. We do not know of any research to date that has investigated this question specifically.

However, in postmanipulation interviews in numerous studies conducted in our lab (Blanchard-Fields & Horhota, 2005; Horhota & Blanchard-Fields, 2006), comments from our older adult participants indicated that they do indeed believe that a person would never write an essay that does not align with their own belief. Additionally, in a more targeted investigation of the relationship between beliefs about behavior and the correspondence bias among young adults, Lord and colleagues (1997) measured what they termed "leakage beliefs" or the degree to which a participant feels that a writer's true disposition leaks out into an essay regardless of situational constraints. They found that levels of leakage beliefs predicted levels of the correspondence bias.

We were interested in investigating whether age differences in the correspondence bias were related to beliefs about attitude-behavior consistency that go beyond the correspondence bias situation investigated in the leakage

beliefs study. However, because content domain has been shown to be important when investigating age differences in dispositional attributions (Blanchard-Fields, 1994; Blanchard-Fields & Beatty, 2005), we focused the present study on whether age differences in attitude-behavior consistency beliefs within the domain of dishonesty or small transgressions—like that in the correspondence bias situation (Sabini & Silver, 2005)—would be related to age differences in the correspondence bias.

GOALS AND HYPOTHESES

Given the above results, the current study tested whether age differences in lay theories of attitude-behavior consistency account for age differences in the correspondence bias above and beyond the influence of cognitive abilities and cognitive style. To do this, we assessed participants' beliefs about others' behavior in various real-world situations where a person is situationally constrained to act against his or her belief and their cognitive abilities and cognitive style. Because no measure of attitude-behavior consistency beliefs existed in the literature, one goal of this study was to create such a measure.

We had three hypotheses for the current study. First, replicating past research, we expected older adults would be more dispositionally biased than young adults. Second, we expected that older adults would hold greater attitude-behavior consistency beliefs than their younger counterparts. And third, we expected age differences in beliefs about other's behavior to predict age differences in the correspondence bias above and beyond age differences in cognitive abilities or cognitive style.

METHOD

Overview

A 2 (age: young vs. old) \times 2 (essay topic: abortion rights vs. capital punishment) \times 2 (direction of essay: for vs. opposed to) between-subjects design was used. Participants completed a measure of beliefs about behavior in the first part of the study and returned approximately two weeks later to participate in what they were told was an unrelated study with a different experimenter. In the second part of the study, participants completed the correspondence bias task.

Participants

Young adult participants ($n = 67$; 58% female) ranged in age from 17 to 26 years, and were from a pool of undergraduate students in the Atlanta metro area. Young adults chose to either receive course credit or monetary remuneration for their participation. Older adult participants ($n = 77$; 69% female), ranged in age from 60 to 84 years, were recruited from senior centers in the Atlanta metro

Table 1. Means, Standard Errors, and Analyses of Variance (ANOVAs) for Demographic Variables, Cognitive Abilities, Cognitive Style, Beliefs Measure, and Bias by Age

Variable	Young adults (n = 67)		Older adults (n = 77)		ANOVA	
	M	SE	M	SE	F	η_p^2
Years of education ^a	13.40	0.24	14.09	0.22	4.48*	.03
Health ^b	4.02	0.10	3.44	0.09	18.30**	.12
Letter Sets Test ^c	23.21	0.45	12.95	0.42	273.44**	.66
Vocabulary Test ^d	16.67	0.71	20.92	0.66	18.53**	.12
Need for closure ^e	169.20	2.53	182.97	2.44	15.38**	.10
Attributional complexity ^f	143.77	2.70	138.65	2.55	1.91	.01
Beliefs ^g	-0.44	0.11	0.38	0.10	29.07**	.17
Bias	4.39	0.22	5.23	0.21	7.95**	.05

^a Formal years of education; data from one older adult were missing.

^b Self-rated health (1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent); data from two older adults were missing.

^c Maximum score = 30.

^d Maximum score = 36.

^e Missing data from one young adult and six older adults.

^f Missing data from one young adult and three older adults.

^g Factor scores for the beliefs measure.

* $p < .05$; ** $p < .01$.

area, and received monetary remuneration for their participation. (Note: The original sample comprised 234 participants. A total of 156 participants returned approximately two weeks after part one to complete the second part of the study. Of those who returned, seven participants were excluded because their score on the Letter Sets Test was below our cutoff criterion [i.e., <5 correct]. An additional five participants were excluded because they did not understand the correspondence bias task [either responded incorrectly to the manipulation check question, $n = 2$, or their qualitative responses revealed that they did not understand the task, $n = 3$].), All participants were community dwelling and spoke English fluently. The majority of participants were non-Hispanic White (76%). The participants in this sample exhibited the typical pattern of age differences in cognitive abilities (see Table 1 for full descriptives).

Materials and Instruments

Beliefs about behavior.—In order to assess an individual’s attitude–behavior consistency beliefs, participants were asked to rate how difficult they thought it was for a person to act against their belief in different situations. The items on this measure were designed to describe situations in which a person could hold a belief that might go against a competing goal constraint. A competing goal constraint was defined as a specific situation in which the person might choose to act against their stated belief (see Table 2 for example items). Participants responded on a 7-point Likert-type scale for each of 15 items (1 = extremely easy, 4 = neither easy nor difficult, 7 = extremely difficult). We intentionally created items that fit within the dishonesty small transgression domain because these types of situations are most consistent with the behavior of the target in

Table 2. Dishonesty Beliefs Items: Rotated Factor Loadings and Communalities From PCA and Descriptives by Age Group

Beliefs measure						Young Adults		Older Adults		Comm ^a
	1	2	3	4	5	M	SD	M	SD	
Person X believes in “honest pay for honest work.” Suppose that traffic is unbelievably bad at 5:00 p.m. How difficult would it be for Person X to consistently leave at 4:30 and enter 5:00 on their timesheet?	.78	.14	.03	.09	-.06	5.36	1.65	6.05	1.46	.64
Person X believes it is wrong to lie. Suppose the promotional dish at the restaurant where Person X is a server has no flavor and is not worth the high cost. How difficult would it be for Person X to describe the dish to customers as, “Delicious and worth every penny”?	.79	.04	.21	-.02	.01	4.47	2.05	5.75	1.47	.66
Person X believes it is wrong to steal. Suppose that Person X realizes that a cashier accidentally gave back the wrong amount of change (\$10). How difficult would it be for Person X to keep the extra money?	.78	.22	-.06	.16	.03	4.37	2.16	6.10	1.49	.68
Person X believes it is wrong to lie. Suppose Person X’s parents won’t let Person X go to the prom. How difficult would it be for Person X to tell their parents that they’re studying with a friend but actually go to the prom?	.70	.02	.04	.17	.18	4.58	1.87	5.60	1.37	.55

Numbers in bold represent factor loadings on the Dishonesty Beliefs factor.

^aCommunalities for each item.

the correspondence bias task. For example, one of the dishonesty items is that a waiter describes the promotional dish at a restaurant as “delicious” even though he does not like it. (For more information on the development of the scale, please refer to the Appendix.)

In order to reduce the items into fewer underlying components and improve the reliability, we conducted a principal components analysis on the items (Hair Jr., Anderson, Tatham, & Black, 1998), using the same sample of participants included in the full analyses ($N = 144$). A principal components analysis with Varimax rotation yielded a final dishonesty factor score from four items (Cronbach's $\alpha = .79$). See Table 2 for a list of the four beliefs items and their component loadings, means and standard deviations by age group, and communalities.

Cognitive abilities.—The Advanced Vocabulary Test (Ekstrom, French, Harman, & Dermen, 1976) was used to assess verbal ability. For each of the 36 items, participants were asked to circle the word from a list of four words that was closest in meaning to a target vocabulary word. Fluid reasoning was measured using the Letter Sets Test—I-1 Revised (Ekstrom et al., 1976). Participants were presented with 30 items, each composed of five letter sets and had to deduce the rule that had been followed by four of the five letter sets in each item. The internal consistency of the scale in the present study was Cronbach's $\alpha = .73$.

Cognitive style.—Two measures of cognitive style were administered: Attributional Complexity and Need for Closure Scales. Attributional complexity was assessed using a revised version of The Attributional Complexity Scale (Fletcher et al., 1986) with 28 items rated on a 7-point Likert-type scale. A sample item from the scale is, *I usually like to try to analyze and explain people's behavior*. Each participant's attributional complexity score was computed by summing their responses across all 28 items (range = 50–196, $M = 141.06$, $SD = 21.99$). A person who is low in attributional complexity uses a fixed rule or a heuristic when making an attribution. A person who is high in attributional complexity takes the social environment into account and is thorough and complex when making an attribution. The internal consistency of the scale for our sample was Cronbach's $\alpha = .90$.

The Need for Closure Scale (Webster & Kruglanski, 1994) was administered in order to assess individual differences in motivation to obtain structure and predictability. The scale consists of 47 Likert-type items rated on a 6-point scale (from *strongly disagree* to *strongly agree*). A sample item is, *I don't like situations that are uncertain*. After recoding reverse-scored items, participant responses were summed across all 47 items (range = 106–229, $M = 176.34$, $SD = 21.60$; Cronbach's $\alpha = .84$).

Essays.—The essays used in the second part of the study were adopted from Blanchard-Fields and Horhota (2005).

The essays are age equivalent and equated in strength and quality. Four essay topics were used in the current study: *For Abortion Rights, Opposed to Abortion Rights, For Capital Punishment, and Opposed to Capital Punishment*. Essay topic and direction were counterbalanced across participants.

Essay questionnaire.—The essay questionnaire consisted of several questions related to the essay and the author of the essay. Participants were asked to rate the true attitude of the writer of the essay (1 = *very much opposed*, 4 = *neutral*, 7 = *very much for*), their confidence in making that judgment, their personal belief on the issue, and the average person's belief on the issue, all on 7-point Likert-type scales.

Manipulation check.—To check if participants understood that the author of the essay was assigned which position to defend (i.e., a “no-choice” situation), we asked participants to indicate what position the writer was expected to write the essay about. Only two participants (both older adults) responded with the wrong assigned direction (e.g., indicated they thought the writer was instructed to write the essay “for” when they were told the writer was instructed to write the essay “opposed to” or vice versa). These two participants were excluded from analyses.

Procedure

In the first session of the study, participants completed the demographics questionnaire, the beliefs about behavior questionnaire, and the Need for Closure Scale. Participants returned two weeks later and completed the Attributional Complexity Scale, the Advanced Vocabulary Test, the Letter Sets Test, and then the correspondence bias task. Participants were told that the writer of the essay was assigned the position of the essay. Specifically, participants read the following instructions before reading the essay:

Please read the following essay and estimate the writer's actual position on this issue. That is, what does the essay writer truly believe about abortion [capital punishment]? Keep in mind that the writer was given the following instructions: “Please write a short essay for [against] abortion [capital punishment], regardless of your own attitude. What is important is your ability to generate arguments and reason about a social issue. Please keep your essay shorter than 200 words in length.”

After reading the essay, participants responded to the essay questionnaire. Participants were debriefed and asked for permission to link their data from part one of the study to part two of the study. All participants consented to this request.

RESULTS

The measure of correspondence bias is our dependent variable. We reverse coded the attribution ratings for the

Table 3. Intercorrelations of Age Group, Cognitive Abilities, Cognitive Style, Beliefs, and Bias

	1	2	3	4	5	6	7
1. Age group	1.00						
2. Letter Sets Test	-.81**	1.00					
3. Vocabulary	.34**	-.06	1.00				
4. Need for Closure	.32**	-.30**	.09	1.00			
5. Attributional Complexity	-.12	.09	.06	-.10	1.00		
6. Beliefs	.41**	-.30**	.06	.15	.07	1.00	
7. Bias	.23**	-.21*	-.04	.17*	.14	.25**	1.00

Note: Beliefs is the dishonesty component factor scores from the principal components analysis; $N = 144$ except Need for Closure ($N = 137$) and Attributional Complexity ($N = 140$) due to experimenter error.

* $p < .05$; ** $p < .01$.

two essays written in the opposed direction such that the recoded response of “7” on the 7-point attribution Likert-type scale is “biased” for all participants. Thus, for all counterbalances, the bias scores ranged from 1 to 7 with higher numbers (i.e., 6 and 7) reflecting greater inferred correspondent attitudes than numbers closer to the midpoint (i.e., 3 or 4) or inferred noncorrespondent attitudes (i.e., 1 or 2). To address whether bias differs as a function of sex, we conducted a two-way between-subjects analysis of variance (ANOVA) with age group, sex, and the age group \times sex interaction term. Neither the main effect for sex nor the age group \times sex interaction term reached significance, $ps > .10$, thus sex was excluded from future analyses.

Next, we conducted a three-way between-subjects ANOVA with age group, topic, and valence and their interaction terms as the independent variables and the bias score as the dependent variable. Consistent with past research, we found a main effect of age group with older adults ($M = 5.14$, $SE = 0.21$) tending to exhibit a greater bias than with young adults ($M = 4.42$, $SE = 0.22$), $F(1, 136) = 5.79$, $p < .05$, $\eta_p^2 = .04$. One sample t tests revealed that young adults' average attribution ratings were only marginally different from the midpoint of the scale (i.e., 4 = neutral), $t(66) = 1.97$, $p = .053$, whereas the average attribution rating of older adults was significantly greater than the midpoint, $t(76) = 5.58$, $p < .001$. There was also a main effect of valence, with those participants who read an essay written in favor of the topic ($M = 5.14$, $SE = 0.20$) exhibiting a stronger bias than those who read an essay opposed to the topic ($M = 4.42$, $SE = 0.22$), $F(1, 136) = 5.82$, $p < .05$, $\eta_p^2 = .04$. There was no effect of topic, and none of the interactions reached significance, $ps > .05$.

Beliefs About Behavior as Mediator

To determine whether there were age differences in the beliefs measure, we conducted a one-way ANOVA with the factor score for dishonesty-type items as the dependent variable and age group as the independent variable. There was a significant main effect of age group with older adults ($M = 0.38$, $SE = 0.10$) rating dishonesty-type items as more diffi-

cult to act against one's belief than with young adults, $M = -0.44$, $SE = 0.11$; $F(1, 142) = 29.07$, $p < .001$, $\eta_p^2 = .17$.

Next, the beliefs measure was tested as a possible mediator of the age–bias relationship (see Table 3 for intercorrelations among age, cognitive abilities, cognitive style, beliefs, and bias). Using the Baron and Kenny (1986) steps for mediation, support was found for a fully mediated model for the beliefs component. Age group was positively associated with bias in the correspondence bias task, $\beta = .23$, $t(142) = 2.82$, $p < .01$, and age group was also positively associated with the degree to which participants believe that it is difficult for someone to act against their beliefs in dishonesty-type situations, $\beta = .41$, $t(142) = 5.39$, $p < .001$. When age group and the beliefs score were added to a linear regression model as predictors of bias, beliefs was positively associated with bias, $\beta = .19$, $t(141) = 2.13$, $p < .05$. Also, in this same regression analysis, age group was no longer a significant predictor of bias, $\beta = .15$, $t(141) = 1.72$, $p > .05$. The Sobel test confirmed mediation, $z = 2.01$, $p < .01$. Based on the squared semipartial correlations, the beliefs component accounted for 62% of the age-related variance in bias.

Cognitive Ability and Cognitive Style as Mediators

The Letter Sets Test, a measure of fluid reasoning, and the Need for Closure Scale, a measure of cognitive style, were the only other variables we measured that were significantly related to both age group and bias. However, when we tested each of these as possible mediators of the age–bias relationship neither variable was a significant mediator. Specifically, although age group was negatively related to the Letter Sets Test, $\beta = -.81$, $t(142) = -16.54$, $p < .001$, when age group and Letter Sets were added to a linear regression model as predictors of bias, neither age group, $\beta = .17$, $t(141) = 1.20$, nor Letter Sets, $\beta = -.08$, $t(141) = -.55$, were significant predictors of bias, $ps > .05$. And although age group was positively related to Need for Closure, $\beta = .32$, $t(142) = 3.92$, $p < .001$, when age group and Need for Closure were added to a linear regression model as predictors of bias, age group remained a significant predictor of bias, $\beta = .19$, $t(141) = 2.16$, $p < .05$, whereas Need for Closure was not significantly related to bias, $\beta = .11$, $t(141) = 1.22$, $p > .05$.

Unique Predictive Power of Beliefs for Bias

We tested the unique predictive power of beliefs for bias in a hierarchical regression model where age group, Letter Sets, and Need for Closure were entered at the first step and beliefs was entered at the second step (see Table 4). When controlling for age, cognitive ability, and cognitive style, only the beliefs variable approached significance, $\beta = .18$, $t(132) = 1.93$, $p = .056$, $R^2 = .09$. Thus, beliefs about behavior in the dishonesty domain are a better predictor of attribution ratings than age, cognitive abilities, or cognitive style.

Because age group was so highly correlated with Letter Sets, we also tested a model without age group as a predictor.

Table 4. Hierarchical Regression: Beliefs Better Predictor of Bias than Age, Cognitive Ability, and Cognitive Style

	β	t	R^2	ΔR^2	F	ΔF
Step 1						
Age group	.16	1.09				
Letter Sets	-.05	-0.32				
Need for Closure	.11	1.19	.06	.06	2.92**	2.92**
Step 2						
Age group	.07	0.48				
Letter Sets	-.06	-0.42				
Need for Closure	.10	1.16				
Beliefs	.18	1.93	.09	.03	3.16**	3.71*

* $p < .06$; ** $p < .05$.

Specifically, we tested whether beliefs had any unique predictive power for bias when controlling for Letter Sets and Need for Closure. Thus, we regressed Letter Sets and Need for Closure on bias in the first step and added beliefs in the second step. Controlling for Letter Sets and Need for Closure, beliefs was the only significant predictor of bias, $\beta = .19$, $t(133) = 2.17$, $p < .05$, $R^2 = .07$.

DISCUSSION

Consistent with past work, we found that older adults exhibited stronger dispositional attributions in the correspondence bias task than their younger counterparts. We also found that older adults, more than young adults, believed that it is difficult for people to act against their beliefs in the content domain of dishonesty. In other words, older adults subscribed to a lay theory of attitude–behavior consistency that is applied to a greater extent than that of young adults in dishonest-type situations. Beliefs about behavior, specifically for dishonesty-type situations, accounted for older adults' stronger dispositional attributions in the correspondence bias task. Moreover, neither cognitive abilities nor cognitive style could account for age differences in the correspondence bias.

Why might older adults have stronger attitude–behavior beliefs than young adults, at least within the dishonesty domain? Perhaps we all carry the hope that people (including ourselves) act in accordance with their beliefs rather than believing the world is populated with hypocrites. However, the instantiation of attitudes in later adulthood may contribute to age differences in how strongly we believe people behave according to their beliefs. That is, in later adulthood, these attitudes may be less flexible than in earlier years when attitudes and beliefs are still forming (Krosnick & Alwin, 1989). Anecdotally, young adulthood is often thought of as a time of cynicism about the disingenuous adult world in which young adults are fledgling members. This general cynicism may carry over to lay theories of attitude–behavior consistency.

A second possible reason for age differences in beliefs, is that with age we may no longer come across many situa-

tions in which we are compelled to behave contrary to our beliefs. This is consistent with what has been referred to as the *contextual or environmental change* model of age-related increases in the coping domain (Folkman, Lazarus, Pimley, & Novacek, 1987; Gross et al., 1997). That is, older adults may encounter fewer situations that require coping than young adults. For example, in young and middle adulthood, we are often more achievement-oriented, striving for school, and work-related outcomes (Carstensen, 1995). In these achievement domains, we may be willing to temporarily behave in a way not consistent with our beliefs (e.g., write an essay that defends a position we do not agree with), in service of our achievement goals (e.g., receiving a good grade in the course). However, in later adulthood, we may not encounter many of these situations because we are either more established in our careers or retired.

On the other hand, young adults may be more willing to change their lay theory, as they are still in the process of shaping their own attitudes and beliefs. Young adults also may encounter more instances to disconfirm a strong attitude–behavior belief than older adults. Whereas this is only speculation as to the underlying cause for age differences in lay theories of attitude–behavior consistency, it remains that older adults, more so than young adults, indicated that in the domain of dishonesty, they believe it is difficult for a person to act against their belief.

Interestingly, in this study, as in other social-cognition and aging studies (Blanchard-Fields & Horhota, 2006), cognitive factors did not matter as much as social factors in explaining age differences. Although fluid reasoning is not a direct measure of the ability to engage in the corrective stage of attributional processing (Gilbert et al., 1988), it is an indication that one aspect of cognition that does decline with age was not able to account for age differences in the correspondence bias. It is possible that other cognitive abilities not measured in this study, such as working memory, might account for older adults' more extreme dispositional attributions. It makes sense that with fewer cognitive resources, older adults might be more likely than young adults to employ heuristic processing when making a causal attribution. Indeed, older adults are more likely to rely on schematic information and beliefs than young adults (Hess & Follett, 1994; Klaczynski & Robinson, 2000). It may be that increased reliance on beliefs also plays a role in explaining age-related differences in attributional reasoning.

Consistent with past work (Horhota & Blanchard-Fields, 2006), our measure of cognitive style, Need for Closure, was related to dispositional attributions but did not mediate age differences in the correspondence bias. Future work should investigate other measures of cognitive style and their relation to age-related differences in the correspondence bias.

Also of note, we found that specifically beliefs regarding dishonesty accounted for age differences in the correspondence bias. We only tested dishonesty-type beliefs because

this domain is the most relevant to the correspondence bias task of the types of questions. Interestingly, dishonesty reflects the morality domain that seems to be particularly salient to older adults. This is indeed substantiated in studies of impression formation among older adults. Older adults pay particular attention to diagnostic information in the morality domain when making an attribution (Hess, Bolstad, Woodburn, & Auman, 1999). Specifically, older adults appeared to employ greater inferential processing within the morality domain as compared with the ability domain, a pattern that was not evident among young adults (Hess et al., 1999). Future work on another sample would need to examine whether the dishonesty realm emerged as the only domain related to age differences in the correspondence bias or whether this was an artifact of the measurement in this sample. Moreover, it may be that a domain more relevant to young adults, such as peer pressure, would be related to dispositional attributions among young adults.

Limitations and Conclusions

This study has a number of limitations. First, we used a cross-sectional design to examine age-related differences, but in order to disentangle possible cohort effects, a longitudinal examination of these relationships is necessary. Second, replication of age effects for the dishonesty scale is needed. In addition, whereas individual differences in attitude-behavior consistency help to explain age differences in the correspondence bias, there is additional variance in dispositional attributions that is not accounted for in the present study. Future work should investigate other individual difference factors that may play a role in explaining dispositional attributions (e.g., personality factors).

Although the attitude attribution paradigm accentuates the faultiness of the correspondence bias, it is possible that older adults' stronger beliefs in attitude-behavior consistency are adaptive in some situations. Future work should investigate when these lay theories are beneficial and under which conditions they are harmful.

FUNDING

This research was supported by the National Institute on Aging grant R01: AG-07607 awarded to F. Blanchard-Fields and National Institute on Aging training grant AG-00175.

ACKNOWLEDGMENTS

We are grateful to Carolyn Beatty, Michelle Horhota, Andrew Mienaltowski, and Kathryn Smith for their assistance with data collection. Portions of this paper were presented at the annual meeting of the Gerontological Society of America, Washington, DC, 2004.

CORRESPONDENCE

Correspondence should be addressed to Jennifer Tehan Stanley, PhD, Department of Psychology and Volen National Center for Complex Systems, Brandeis University, 415 South Street, Waltham, MA 02454-9110. E-mail: jts@brandeis.edu.

Jennifer Tehan Stanley is now at Department of Psychology, Brandeis University.

REFERENCES

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182. doi: 10.1037/0022-3514.51.6.1173.
- Blanchard-Fields, F. (1994). Age differences in causal attributions from an adult developmental perspective. *Journals of Gerontology: Psychological Sciences, 49*, P43–P51. doi: 10.1093/geronj/49.2.P43.
- Blanchard-Fields, F., & Beatty, C. (2005). Age differences in blame attributions: The role of relationship outcome ambiguity and personal identification. *Journal of Gerontology: Psychological Sciences, 60B*, P19–P26. doi: 10.1093/geronb/60.1.P19.
- Blanchard-Fields, F., & Horhota, M. (2005). Age differences in the correspondence bias: When a plausible explanation matters. *Journals of Gerontology: Psychological Sciences, 60B*, P259–P267. doi: 10.1093/geronb/60.5.P259.
- Blanchard-Fields, F., & Horhota, M. (2006). How can the study of aging inform research on social cognition? *Social Cognition, 24*, 207–217. doi: 10.1521/soco.2006.24.3.207.
- Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science, 4*, 151–156. doi: 10.1111/1467-8721.ep11512261.
- Chen, Y., & Blanchard-Fields, F. (2000). Unwanted thought: Age differences in the correction of social judgments. *Psychology and Aging, 15*, 475–482. doi: 10.1037/0882-7974.15.3.475.
- Choi, I., & Nisbett, R. E. (1998). Situational salience and cultural differences in the correspondence bias and actor-observer bias. *Personality and Social Psychology Bulletin, 24*, 949–960. doi: 10.1177/0146167298249003.
- Devine, P. G. (1989). Overattribution effect: The role of confidence and attributional complexity. *Social Psychology Quarterly, 52*, 149–158. doi: 10.2307/2786914.
- Ekstrom, R. B., French, J. W., Harman, H. H., & Dermen, D. (1976). *Manual kit of factor-referenced cognitive tests*. Princeton, NJ: Educational Testing Service.
- Fletcher, G. J. O., Danilovics, P., Fernandez, G., Peterson, D., & Reeder, G. D. (1986). Attributional complexity: An individual differences measure. *Journal of Personality and Social Psychology, 51*, 875–884. doi: 10.1037/0022-3514.51.4.875.
- Folkman, S., Lazarus, R. S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging, 2*, 171–184. doi: 10.1037/0882-7974.2.2.171.
- Follett, K. J., & Hess, T. M. (2002). Aging, cognitive complexity, and the fundamental attribution error. *Journal of Gerontology: Psychological Sciences, 57B*, P312–P323. doi: 10.1093/geronb/57.4.P312.
- Gigerenzer, G. (2003). The adaptive toolbox and lifespan development: Common questions? In U. M. Staudinger & U. Lindenberger (Eds.), *Understanding human development: Dialogues with lifespan psychology* (pp. 423–435). Boston: Kluwer Academic Publishers.
- Gilbert, D. T., & Malone, P. S. (1995). The correspondence bias. *Psychological Bulletin, 117*, 21–38. doi: 10.1037/0033-2909.117.1.21.
- Gilbert, D. T., McNulty, S. E., Giuliano, T. A., & Benson, J. E. (1992). Blurry words and fuzzy deeds: The attribution of obscure behavior. *Journal of Personality and Social Psychology, 62*, 18–25. doi: 10.1037/0022-3514.62.1.18.
- Gilbert, D. T., Pelham, B. W., & Krull, D. S. (1988). On cognitive busyness: When people perceivers meet persons perceived. *Journal of Personality and Social Psychology, 54*, 733–740. doi: 10.1037/0022-3514.54.5.733.
- Gross, J. J., Carstensen, L. L., Pasupathi, M., Tsai, J., Göttestam Skorpen, C., & Hsu, A. Y. C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging, 12*, 590–599. doi: 10.1037/0882-7974.12.4.590.
- Hair, J. F. Jr., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). Factor analysis. *Multivariate data analysis* (5th ed., pp. 87–135). Delhi: Pearson Education.

- Hess, T. M., Bolstad, C. A., Woodburn, S. M., & Auman, C. (1999). Trait diagnosticity versus behavioral consistency as determinants of impression in adulthood. *Psychology and Aging, 14*, 77–89. doi: 10.1037/0882-7974.14.1.77.
- Hess, T. M., & Follett, K. J. (1994). Adult age differences in the use of schematic and episodic information in making social judgments. *Aging, Neuropsychology, & Cognition, 1*, 54–66. doi: 10.1080/09289919408251450.
- Hess, T. M., McGee, K. A., Woodburn, S. M., & Bolstad, C. A. (1998). Age-related priming effects in social judgments. *Psychology and Aging, 13*, 127–137. doi: 10.1037/0882-7974.13.1.127.
- Horhota, M., & Blanchard-Fields, F. (2006). Do beliefs and attributional complexity influence age differences in the correspondence bias? *Social Cognition, 24*, 310–337. doi: 10.1521/soco.2006.24.3.310.
- Jones, E. E., & Harris, V. A. (1967). The attribution of attitudes. *Journal of Experimental Social Psychology, 3*, 1–24. doi: 10.1016/0022-1031(67)90034-0.
- Klaczynski, P. A., & Robinson, B. (2000). Personal theories, intellectual ability, and epistemological beliefs: Adult age differences in everyday reasoning biases. *Psychology and Aging, 15*, 400–416. doi: 10.1037/0882-7974.15.3.400.
- Krosnick, J. A., & Alwin, D. F. (1989). Aging and susceptibility to attitude change. *Journal of Personality and Social Psychology, 57*, 416–425. doi: 10.1037/0022-3514.57.3.416.
- Lord, C. G., Scott, K. O., Pugh, M. A., & Desforges, D. M. (1997). Leakage beliefs and the correspondence bias. *Personality and Social Psychology Bulletin, 23*, 824–836. doi: 10.1177/0146167297238004.
- Lupfer, M. B., Clark, L. F., & Hutcherson, H. W. (1990). Impact of context on spontaneous trait and situational attributions. *Journal of Personality and Social Psychology, 58*, 239–249. doi: 10.1037/0022-3514.58.2.239.
- Mienaltowski, A., & Blanchard-Fields, F. (2005). The differential effects of mood on age differences in the correspondence bias. *Psychology and Aging, 20*, 589–600. doi: 10.1037/0882-7974.20.4.589.
- Miller, A. G., Ashton, W. A., & Mishal, M. (1990). Beliefs concerning the features of constrained behavior: A basis for the fundamental attribution error. *Journal of Personality and Social Psychology, 59*, 635–650. doi: 10.1037/0022-3514.59.4.635.
- Osborne, R. E., & Gilbert, D. T. (1992). The preoccupational hazards of social life. *Journal of Personality and Social Psychology, 62*, 219–228. doi: 10.1037/0022-3514.62.2.219.
- Reeder, G. D. (1993). Trait-behavior relations and dispositional inference. *Personality and Social Psychology Bulletin, 19*, 586–593. doi: 10.1177/0146167293195010.
- Sabini, J., & Silver, M. (2005). Lack of character? Situationism critiqued. *Ethics, 115*, 535–562.
- Salthouse, T. A. (1996). The processing-speed theory of adult age differences in cognition. *Psychological Review, 103*, 403–428. doi: 10.1037/0033-295X.103.3.403.
- Webster, D. M., & Kruglanski, A. W. (1994). Individual differences in need for cognitive closure. *Journal of Personality and Social Psychology, 67*, 1049–1062. doi: 10.1037/0022-3514.67.6.1049.

APPENDIX

Description of Beliefs Scale Construction

The original scale consisted of 46 items classified as belonging to the content domains of dishonesty (15 items), assertiveness (12 items), or traditional beliefs (19 items). In order to reduce the items into fewer underlying components, we conducted a principal components analysis on the 46 items (Hair Jr., Anderson, Tatham, & Black, 1998), using the same sample of participants included in the full analyses ($N = 144$). A principal components analysis with

Varimax rotation extracted 15 components with eigenvalues greater than 1.0 and accounted for 67% of the variance. In order to reduce the number and enhance the interpretability of the components, the following criteria were used at each iteration until both criteria were met for all items: (1) retain items with a loading greater than or equal to .40 and (2) after the initial step, retain items that do not load on more than one component with a loading greater than or equal to .40 (or .30 in the later steps). It did not appear that the items in the scale represented a more general belief, as no item loaded greater than .40 on more than two components. As a result of this analysis, 13 items were retained to make up a five-component solution that accounts for 63% of the variance. Based on this solution, a factor score was computed for each participant for each of the five components.

The 13 items were categorized into five different types of situations: (1) dishonesty, with 4 items (Cronbach's $\alpha = .79$), (2) marriage, with 2 items (Cronbach's $\alpha = .43$), (3) peer pressure, with 2 items (Cronbach's $\alpha = .42$), (4) family, with 2 items (Cronbach's $\alpha = .49$), and (5) obligations, with 3 items (Cronbach's $\alpha = .44$). See Table 2 in the manuscript for a list of the four dishonesty items and their component loadings, means and standard deviations by age group, and communalities.

The initial 46 items of the beliefs measure were conceptually designed to fit within three content domains: dishonesty, assertiveness, and traditional beliefs. However, a principal components analysis suggested five separate components. Consistent with the initial conceptualization of the items, a Dishonesty scale emerged in which all items in this subscale were initially categorized as dishonesty. Items initially categorized as traditional beliefs actually loaded on three different components: obligations, family, and marriage. Finally, the peer pressure subscale consisted of items initially conceptualized as assertiveness.

We chose to test the dishonesty beliefs score as a potential mediator of age differences in the correspondence bias for two reasons: (1) the Dishonesty beliefs scale was the only scale with adequate reliability and (2) the dishonesty-type items were the most conceptually similar to the attitude attribution task. The reason we felt the dishonesty subscale was the most conceptually similar to the attitude attribution task is because the items in the dishonesty subscale were for the most part temporary transgressions, whereas the other scales consisted of more permanent or long-standing violations of beliefs. For example, one of the dishonesty items is that a waiter describes the promotional dish at a restaurant as “delicious” even though he does not like it. One of the items in the family subscale is for a woman who believes wives should take their husbands' last names to keep her maiden name because of her career. We felt that the more temporary transgressions were most similar to the situation of writing an essay against your belief compared with the more permanent belief violations.