

**HOW IT MATTERS WHEN IT HAPPENS:
LIFE CHANGES RELATED TO FUNCTIONAL
LOSS IN YOUNGER AND OLDER ADULTS***

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ABSTRACT

This study examined the impact of loss of vision on important life domains depending on life context. The sample included two groups dealing with vision impairment: middle-aged ($n = 44$) and older adults ($n = 107$). Findings showed important group differences in extent, type, and facet of life changes across and within four life domains: goals/priorities, self-views, worldviews, and relationships with others. Overall, middle-aged participants experienced more change, and these changes seemed to be more pronounced. Findings suggest that if vision loss occurs in middle adulthood, it tends to be more disruptive, and that it comes with the risk of negative long-term consequences.

*The sample used for this study included two subsamples; the middle-aged group was drawn from a study of life goals and rehabilitation among working-age adults that was funded by Mr. Edward Ferris; the older group was drawn from a longitudinal study on coping with vision loss in late life, which was funded by the National Institute of Mental Health (R01 MH64437; Horowitz, PI). Both studies were conducted at Lighthouse International, New York, NY.

Functional loss due to a physical impairment and resulting disability can occur at any point across the life-span and, in many cases, it involves challenges that dramatically alter one's life. The life-span developmental perspective stresses the importance of understanding adaptation to such major challenges depending on the point in life at which the challenge occurs, and the developmental context in which it happens (e.g., Baltes, 1987). Differences in internal and external developmental conditions may also affect what is perceived as a challenge. An important notion here is that of on- and off-time life events (Neugarten, 1976), which refers to the idea that the impact of a life event tends to be more severe when it occurs during a time when experiencing the life event is not considered normative.

Vision impairment is the second most prevalent disability among middle-aged and older adults (NCHS, 1993), affecting 16.5 million Americans age 45 years and older (Horowitz, Brennan, & Reinhardt, 2005); about 15% of persons aged 45-64, 20% of persons aged 65 and older, and 25% of those aged 75 and older report some form of vision impairment (The Lighthouse Research Institute, 1995). Visual loss during adulthood is mostly due to eye disease, such as macular degeneration, diabetic retinopathy, and glaucoma, and is often progressive in nature and irreversible (Faye, 2000). It should be noted that the prevalence of vision loss in adults is expected to increase markedly over the next 20 years due to the aging U.S. population (Massof, 2002; The Eye Disease Prevalence Research Group, 2004). Thus, research that contributes to gaining an in-depth understanding of the consequences and implications of vision loss during all stages of adulthood will become increasingly important as a public health concern.

Consistent evidence across studies indicates that vision loss can put older adults at risk for depression or other mental health problems (Burmedi, Becker, Heyl, Wahl, & Himmelsbach, 2003; Horowitz, Reinhardt, & Kennedy, 2005). In contrast, little is known about how middle-aged adults deal with such a disability. However, there is evidence showing that the risk for mental health problems (e.g., clinically relevant levels of depression) following vision loss tends to be higher for middle-aged compared to older adults (Boerner, 2004; Brennan & Cardinali, 2000), suggesting that the impact of vision loss varies depending on the point in adult life at which it occurs. In part, this may be related to the untimely nature of the experience.

Although this can vary from person to person, typical concerns in middle adulthood involve life goals such as pursuing a career, meeting the demands of parenthood, nurturing one's marriage/relationship, and managing a household (Nurmi, 1992). These can be considered "on-time" experiences as they represent what most people will face on some level during midlife. Being confronted with a chronic health condition, on the other hand, is less commonly experienced at this point and therefore can be considered "off-time" prior to old age, when losses are expected to accumulate (Heckhausen, Dixon, & Baltes, 1989). The basic assumption related to the notion of on- and off-time life events is that the impact

of a life event tends to be more life-shattering or life-changing if its occurrence is untimely (Neugarten, 1976).

Moreover, the pursuit of life goals typically important during midlife, such as the balancing of work and family (Lachman, 2001, 2004), may be blocked or disrupted by vision loss. For example, being confronted with vision loss in middle adulthood may involve a disruption of one's career path and/or complication in child-rearing goals, whereas facing this situation in late life is less likely to interfere with career and child-rearing domains. Instead, facing vision loss in late life, coupled with other age-related limitations such as hearing loss, is likely to interfere primarily with more basic aspects of daily functioning. However, little is known about the effects of vision loss on life goals at different points across the lifespan. An understanding of the complex interplay between the pure functional impairment of vision loss and its personal meaning regarding life goals and expectancies is needed to ensure that rehabilitation services adequately address the needs of different adult populations. The public also needs to have access to this knowledge so that family members and friends of individuals with vision loss may have appropriate expectations and can provide proper support.

Previous work has shown that life changes due to vision impairment in young and middle adulthood are reported in a number of life domains (i.e., goals, self-views, worldviews, and relationships with others), and that there are some links with well-being (self-views and worldviews; Boerner, Wang, & Cimarolli, 2006). This research also indicated that reported life changes in this population were more often perceived as negative than as positive, but were even more often perceived as mixed, meaning neither clearly positive nor negative. In addition, while for most people the change seemed to be a gradual one, for others the nature of the change was far more drastic. Based on these findings, we suggested that the nature of some of the reported changes was related to the developmental context in which the vision loss occurred, which includes the onset of vision loss during midlife interfering with goals that are common at this point in life, and the element of vision loss being seen as an off-time event. However, this kind of conclusion can only be drawn as a result of comparing the experiences of these working-age adults with a population in which vision loss is a more common, "on-time" event, namely older adults with vision loss.

Thus, the primary aim of this study was to compare two groups of visually-impaired people: middle-aged and older adults. For this purpose, we drew on two samples from different studies on vision loss, in which the same questions regarding life changes had been asked. Based on the notion of on- and off-time life events, and considering prior evidence for more negative mental health consequences among middle-aged adults, we predicted that the middle-aged group would experience more change across four life domains—goals, self-views, worldviews, relationships with others—and that they would perceive this change as more "life-changing" or more significant. We further expected that middle-aged adults would more often provide reports of drastic versus gradual

life changes compared to the older group, due to the expected difference in how significant these life changes are perceived to be. In addition, we expected more reports of life changes characterized by loss in the older age group, based on literature showing that losses accumulate in old age (Heckhausen et al., 1989), and considering that many goal pursuits may already be blocked or made more difficult by other limitations or depleted resources typical of the aging process. Subsequently, older adults are likely to have fewer means for making a goal shift coupled with a lack of alternative goal options, thus making the likelihood of reporting life changes that focus on loss more common in this age group.

METHOD

Sample

The total sample consisted of two sub-samples dealing with vision impairments: middle-aged adults and older adults. The middle-aged group, consisting of 44 participants between the ages of 42 and 64, was drawn from a study on vision loss among working-age adults (Study A, see Boerner et al. (2006) for more detailed sample information¹). The older group, consisting of 107 participants between the ages of 65 and 94, was drawn from an ongoing longitudinal study on coping with age-related vision loss in late life (all cases available at time of analysis; Study B; for more detailed sample information, see Boerner, Brennan, Horowitz, & Reinhardt (in press)).

Participants in both studies had been applicants at a vision rehabilitation agency serving the greater New York metropolitan area. All participants were experiencing significant visual impairment. Other criteria for inclusion were: community-dwelling, fluency in English, and absence of cognitive or hearing deficits that could interfere with a research interview. For both studies, data were collected by trained interviewers, in Study A through telephone interviews and in Study B through in-person interviews. Although the total length of the interviews in the two studies differed (approximately 30 minutes in Study A and 90 minutes in Study B), the length of time devoted to the narrative section that is the basis of comparison in the present article and the positioning of this section within the interview did not differ (10-15 minutes in the beginning of the interview). Moreover, interviews for both studies were conducted by the same master's and doctoral level research assistants. Intensive training of these research assistants to ensure interviewer skills and narrative data quality involved a systematic procedure of:

¹The study sample originally included 53 participants between the ages of 22 and 64. However, the 9 participants who were under 40 were excluded for the purposes of the present article because this group was too small to allow for meaningful comparisons with the middle-aged and the older group. It is also noted that the small size of this group is a reflection of the low prevalence of vision loss during young adulthood (2.4%; Adams, Hendershot, & Marano, 1999).

1. observation of a skilled interviewer;
2. mock interviewing among team members for familiarization with the approach;
3. being observed while conducting the interview and receiving feedback; and
4. regular review of transcripts to check on the research assistant's probing style and to ensure quality of narrative data.

Table 1 shows a comparison of sample descriptives for participants from the two studies. Participants in the two subsamples did not differ with respect to gender and educational level, but there were significant differences for race, income, marital, and employment status. The middle-aged group was more diverse in terms of racial/ethnic background (26% black, 9% non-White Hispanic, and 5% of other race). Moreover, these participants were more likely to be married (32%), unemployed (58%; 57% of these primarily due to vision problems), and to report "just getting by" financially (66%). Participants in the older group were more likely to be divorced (48%), retired (84%), and to report that "money is not a problem" (41%). It is noted that these differences in sample were to be expected considering the general life context in the two age groups. Middle-aged adults are more likely to still be married and to be employed, and not as likely to be retired compared to the older population. Thus, they are more likely to become unemployed when afflicted with a physical disability that limits their ability to function independently, and this in turn is likely to affect their finances.

Although Study A included persons with a variety of eye diseases and Study B limited participation to those with macular degeneration, participants did not differ in terms of their functional vision loss. As determined with the Functional Vision Screening Questionnaire (Horowitz, Teresi, & Cassels, 1991), a 15-item index used to indicate whether or not difficulty is experienced in specific functional areas (e.g., reading newspaper print, or recognizing faces across a room), participants in both groups reported an average of 11-12 functional difficulties. Thus, the two samples did not differ with respect to participants' level of functional impairment.

Assessment and Coding of Life Changes

In both studies, narrative information about participants' change in goals and priorities, self-views, worldviews, and relationships with others was collected with the same set of open-ended questions. Four modified questions were asked based on the five questions used by Collins, Taylor, and Skokan (1990). The modified question regarding goals and priorities combined two questions from Collins and colleagues that dealt with priorities and daily activities, and plans and goals for the future. The remaining three questions used the same terminology as Collins and colleagues. Participants were read the following instructions: "Some people who are confronted with a vision impairment experience changes in their goals and priorities, their views about the world, themselves, and other people.

Table 1. Descriptive Information for Sample Characteristics of Study A and Study B

Variable	Study A (n = 44)		Study B (n = 107)		Significance Test	
	Mean (SD)	N (%)	Mean (SD)	N (%)	t-Value	χ^2
Age	55.68 (6.92)		82.00 (6.17)		-23.16***	
Gender (female)		23 (52)		73 (68)		3.43
Education (<= high school)		37 (84)		91 (85)		.02
Race (non-White)		17 (40)		5 (5)		29.79***
Income (adequate)		10 (23)		79 (74)		33.65***
Marital status (married)		14 (32)		9 (8)		13.23***
Employment (employed)		10 (23)		7 (7)		8.18**
Functional vision loss	11.77 (2.76)		11.44 (2.95)		.64	

*p < .05. **p < .01. ***p < .001.

The next questions are about how your vision impairment has affected you in these ways.” The first question posed to participants was “In what ways, if any, has having a vision impairment changed your goals and priorities?” Questions 2 and 3 were identical in form and asked about changes in self-views and worldviews. Question 4 was formulated as “How has having a vision impairment changed the ways in which you relate to others?” In Study A, interviewers recorded data in a typed document for later coding. In Study B, narrative data were audio taped and later transcribed. Thus, the narrative data from both studies were available for coding in the form of typed documents to be reviewed and coded as outlined next.

Analysis Plan

To code the narrative data, we drew on the coding system that had been developed for Study A, which was guided by a qualitative analytical approach to interview data (i.e., grounded theory; Straus & Corbin, 1990). We also added some new codes to this coding system to be able to exhaustively represent the information gained through the inclusion of the older sample. The process of code development included several steps of reviewing the narrative responses by the authors who have extensive experience in using qualitative methodology from their prior and ongoing work on coping with loss (e.g., Boerner, 2004; Boerner & Silverman, 2001; Cimarolli, Boerner, & Wang, 2006; Wang & Boerner, 2008). This process included the reviewing of narratives from the first five participants to generate initial sets of codes and clarify their definitions, followed by refining these code definitions in several rounds of coding, always based on a new set of narratives, until interrater agreements between the authors had reached average interrater agreements of at least 80%. For a more detailed description of the coding system and its development, the reader is referred to Boerner et al. (2006).

Codes first reflected whether or not there was evidence of change. If change was present, then the nature of the change was coded in the following categories: the type of change (e.g., positive or negative), content of change (e.g., change in career or in self-worth), and facet of change (e.g., drastic shift or modification of certain aspects). It should be noted that in terms of the type of change in each domain, positive or negative change codes were only assigned when the narrative as conveyed by the participant indicated clearly positive or clearly negative changes. In addition, a mixed code was created to reflect changes that were neither clearly positive nor clearly negative in terms of valence. This code was assigned when participants described a life change as “just different,” not perceiving it as either particularly positive or negative (sample quote: “You have to reestablish where you are at with people and how you relate to them. It’s just different from before, not better or worse”).

The content codes were based on common themes that emerged from the narratives. In some cases, these themes had a clear direction (e.g., feeling more vulnerable, or placing less importance on appearance/material things), whereas in

others they tended to be merely described as change (e.g., change in career or leisure). Some of the content codes were modified and redefined for the current study to be able to adequately capture all narrative information available from the larger sample that comprised the middle-aged and older subsamples. For a complete list of content codes see Table 2.

Four codes that had been created previously (Boerner et al., 2006) were used to describe facet of change. A “drastic shift” code was assigned when the participant described drastic general development in the form of change from the former goal to the present goal (e.g., family now replaces career as most important goal). In contrast, the “modification of certain aspects” code was assigned when changes in certain aspects, rather than an overall change, occurred (e.g., career is still important but person is no longer solely focused on this life domain). The “discovery of new aspects” code was assigned when a person referred to newly added aspects without mentioning the loss of previous aspects (e.g., discovering a love for humanitarian work to be added to current work activities), and conversely, the “loss of old aspects” code was assigned when a person described losing old aspects of life without describing anything new to replace what was lost (e.g., career is no longer important but nothing has taken its place).

Average interrater agreements in Study A were consistently at or above 80%. The same level of percent agreements among independent coders was maintained in the current study, which included participants from Study A and Study B. In addition, kappas were calculated, ranging from .62 to 1 with an average kappa of .88. Descriptive analyses and Chi square tests were conducted to identify the frequencies and percentages of each change code that emerged during the narrative coding.

FINDINGS

Change Across Domains

In both groups, a majority of participants reported change in at least one domain (91% in the middle-aged vs. 82% in the older group, see Table 3). However, when the number of total changes across domains was considered, the difference between the groups was clearly significant ($t = 3.37, p = .001$), in the direction of more change in the middle-aged group. With regard to the type of change reported in at least one domain, there were more positive changes (23% vs. 10%; $\chi^2 = 4.03, p < .05$) and a trend toward more negative changes in the middle-aged group (55% vs. 39%; $\chi^2 = 2.96, p < .10$). There was no group difference regarding mixed changes. In terms of facets of change reported in at least one domain, there were more drastic changes in the middle-aged group (25% vs. 5%; $\chi^2 = 13.60, p < .001$). Modifications, new discoveries, and losses, on the other hand, were reported with a similar frequency in both groups. Taken together, as expected, middle-aged participants seemed to experience more change, and in

Table 2. Frequencies, Percentages, and Chi-Square Significance Values of Content Codes for Life Changes in Each Domain

Domain		Middle-aged		Older		χ^2
		No.	%	No.	%	
Goals/Priorities	Change in career	17	53	4	6	27.89***
	Change in leisure	14	44	43	66	4.44*
	Higher priority on vision-related health	6	19	1	2	9.49**
	Basic functioning/self-preservation more important	8	25	8	12	2.51
	Material things/appearance less important	7	22	6	9	2.95
	Higher priority on family life	4	13	1	2	5.27*
	Focus on learning ways to adjust	5	16	15	23	.73
	Focus on helping others	3	9	2	3	1.74
Self-views	Realize loss of independence	16	50	27	47	.10
	Diminished self-worth	16	50	16	28	4.52*
	Learn to accept vision problem	8	25	7	12	2.48
	Appreciate life more	5	16	4	7	1.75
	Feel more vulnerable	7	22	4	7	4.31*
	Realize inner strength	3	9	3	5	.59
	More compassionate/sensitive	1	3	2	3	.01
	Increased self-worth	3	9	5	9	.01
	Heightened sense of aging/mortality	0	0	8	14	4.84*
Worldviews	Realize people's ignorance	5	33	2	10	3.17 ⁺
	World is cruel/unfair/dangerous	5	33	3	14	1.84
	More compassionate/aware worldview	3	20	9	43	2.06
	Disconnect from/disinterest in world	4	27	6	29	.02
	Realize good in people	3	20	2	10	1.84
Relationships	Reestablish ways with people	20	56	33	61	.05
	More dependent on others	15	44	14	26	3.13 ⁺
	Appreciate/better understand others	8	24	7	13	1.65
	Changed family/social role	4	12	3	6	1.10
	Less social due to mobility issues	2	6	5	9	.33

⁺ $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$; $df = 1$.

Table 3. Frequencies, Percentages, and Significance Values for Extent, Type, and Facet of Life Change Across Domains

	Middle-aged		Older		χ^2
	No.	%	No.	%	
Change (yes) ^a	40	91	88	82	1.81
Type of Change (yes) ^b					
Positive	10	23	11	10	4.03*
Negative	29	55	42	39	2.96+
Mixed	28	64	70	65	.04
Facet of Change (yes) ^c					
Drastic	11	25	5	5	13.60***
Modification	30	68	73	68	.00
Discovery	17	16	10	9	1.34
Loss	15	34	37	35	.00

^a*df* = 1. ^b*df* = 2. ^c*df* = 3.

⁺*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

many cases this change seemed to be more pronounced or significant (more negative or positive evaluations, and more drastic changes).

As noted in the sample description, the middle-aged and older groups differed on several sample characteristics; these included middle-aged participants being more likely to be married, unemployed, and to just get by financially. To assess whether differences on these variables could be a factor in participants' reports of life changes, we examined if the proportion of participants reporting change differed within each age group, depending on race, marital status, employment status, and income adequacy. In both age groups, the emerging picture was that whether or not change was reported, and whether or not the reported change was negative, positive, or mixed, did not systematically differ for these variables.

Domain-Specific Change

Group differences for whether or not change occurred, and for type and facet of life changes in each of the four domains are depicted in Table 4. There was no significant difference with respect to goal changes, and only a trend of more world view changes for the middle-aged group. A clearer pattern emerged for the other two domains, where, as expected, there were significantly more changes for the middle-aged compared to the older group (self-views: 72% vs 54%, $\chi^2 = 4.44$,

Table 4. Frequencies, Percentages, and Significance Values for Extent, Type, and Facet of Life Changes in Each Domain

	Goals/Priorities				Self-Views				Worldviews				Relationships							
	Middle-aged		Older		Middle-aged		Older		Middle-aged		Older		Middle-aged		Older					
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				
Change (yes) ^a	32	73	65	61	1.95	32	72	58	54	4.44*	15	34	21	20	3.59 [†]	34	77	54	51	9.21**
Type of Change ^b	.07																			
Positive	4	13	0	0	10.86**	4	13	8	14		3	20	3	14	3.38	4	12	3	6	4.85 [†]
Negative	8	25	24	37		13	41	22	38		8	53	6	29		16	47	16	30	
Mixed	20	63	41	63		15	47	28	48		4	23	12	57		14	41	35	65	
Facet of Change ^c	14.90**																			
Drastic	7	22	1	2	14.90**	4	13	2	3	5.78	2	13	1	5	5.26	3	9	2	4	1.04
Modification	17	53	32	49		20	63	40	69		4	27	13	62		26	77	43	80	
Discovery	0	0	5	8		0	0	5	9		13	47	4	19		0	0	0	0	
Loss	8	25	27	42		8	25	11	19		2	13	3	14		5	15	9	17	

^adf = 1. ^bdf = 2. ^cdf = 3.

[†]p < .10; *p < .05. **p < .01. ***p < .001.

$p < .05$; relationships: 77% vs. 51%, $\chi^2 = 9.21, p < .01$). It is noted that worldview changes were the least prevalent in both groups, whereas the other three domains were all reported by a majority in both groups.

In terms of type of change for goals, participants in the older group reported no positive and more negative changes (37% vs. 25%, $\chi^2 = 9.05, p < .01$). For changes in self-views, the type of reported changes was similar in both age groups. In the worldviews domain, there was a trend toward more negative and mixed changes in the middle-aged compared to the older group, whereas in the relationships domain, there seemed to be more positive and negative changes in the middle-aged group and more positive changes in the older group. However, overall, these group differences were not as pronounced.

Regarding facets of change, there seemed to be more drastic goal changes in the younger group and more goal losses in the older group (22% vs. 2% and 25% vs. 42%, respectively, $\chi^2 = 14.90, p < .01$). Also, the discovery of new goals was not reported at all in the middle-aged group but was reported by some participants in the older group. For self-views, the pattern was similar in some regards; while there was a similar occurrence of modifications and losses, there was also a trend toward more instances of drastic change and new discoveries in the middle-aged as opposed to older group, but in general these were rather small differences between the two samples. For worldviews, there was a trend toward more modifications reported in the older group and more new discoveries in the middle-aged group, but no group differences for loss and drastic change. Finally, reports in the relationships domain were very similar in terms of facets of change. Taken together, these findings support the prediction that the middle-aged group would experience more drastic life changes.

Content of Change

For goal-related changes, change in career (53% vs. 6%, $\chi^2 = 27.89, p < .001$) as well as having a higher priority on vision-related health (19% vs. 2%, $\chi^2 = 9.49, p < .01$) and on family life (13% vs. 2%, $\chi^2 = 5.27, p < .05$) were reported significantly more often by the middle-aged group, whereas change in leisure was reported significantly more often by the older group (44% vs. 66%, $\chi^2 = 4.44, p < .05$; see Table 2), fitting in with what we know about typically important goals and priorities for different age groups. Descriptively, it may be noted that all reported changes, except for a change in leisure and a focus on learning ways to adjust, seemed to be reported more frequently by the middle-aged group. Regarding changes in self-views, differences were significant for diminished self-worth (middle-aged group more frequent, 50% vs. 28%, $\chi^2 = 4.52, p < .05$), feeling more vulnerable (middle-aged group more frequent, 22% vs. 7%, $\chi^2 = 4.31, p < .05$), and heightened sense of aging/mortality (older group more frequent, 13% vs. 0%, $\chi^2 = 4.84, p < .05$); beyond that, there were some trends, such as more reports of appreciating life more in the middle-aged group, but

clearly no group differences for realizing one's loss of independence and increased self worth. For worldview changes, there was a trend toward more frequent reports of realizing people's ignorance. For relationship changes, there was only one trend, with the younger group reporting being dependent on others more often than the older group. Overall, in terms of the reported content of change, most group differences were found in the goals and self-views domains. In contrast, there were more similarities in terms of the reported content for worldviews and relationship changes.

DISCUSSION

Study findings demonstrated important differences in life changes due to vision loss reported by middle-aged compared to older adults. As expected, middle-aged participants seemed to experience more change, and in many cases, these changes seemed to be more pronounced or significant, as evidenced by more negative or positive evaluations, and more drastic changes. Interestingly, and contrary to prediction, the older group did not report more losses across domains. However, although domain-specific differences between the two groups were the least pronounced for goal changes (e.g., no positive change, barely any drastic change), participants in the older group did report more goal-related losses. This may indeed reflect fewer options for shifting to new goals among older adults. More generally, study findings suggest that the perception of life changes due to vision loss may be more common among middle-aged adults, possibly because such life changes are not considered to be a normative "on-time" event for this life stage. Furthermore, the daily life of middle-aged compared to older adults tends to involve greater complexity in terms of the multitude and types of responsibilities (e.g., work life, child-rearing, and providing care to elderly relatives; Lachman, 2004), possibly resulting in more life aspects that are affected by the vision loss.

In line with this thought was the finding that when it came to worldview changes, the realization of other people's ignorance with regard to people with disability seemed to be more of an issue for the middle-aged group. It may actually be the case that they encountered more instances of such ignorance because their health condition also violated others' expectations of circumstances that are typical at midlife. Finally, apart from the evidence for more relationship changes in the middle-aged compared to the older group, which was consistent with the general pattern across domains, this domain actually showed the least group differences with respect to type and facet of change. This suggests that relationship changes were generally perceived as central and tended to be characterized in similar ways, regardless of age.

When it came to the content of change, most similarities emerged for the reported relationship changes, whereas most group differences were found for goals and self-views-related changes. Some of the differences that were found for

content of change seem to make sense intuitively, such as more instances of career change among the middle-aged group. Not only is career likely to be a more prominent life domain for middle-aged compared to older adults in terms of goals and priorities that are more or less common at different life points in life, but also it is clear that vision loss faced at midlife is more likely to cause interruptions in one's worklife. This is reflected in both the sample characteristics indicating that many of the middle-aged participants reported being unemployed due to their vision loss, and the narrative responses to questions about life changes, which so often centered around having to find a new career path that would accommodate the functional limitations caused by the disability. In contrast, it makes sense that we would find more leisure changes among the older group, as most of them were retired, and reports of a heightened sense of mortality in the older group, reflecting their closer proximity to the end of the life span.

Less self-evident is the findings that diminished self-worth seemed to be more of an issue in the middle-aged group, whereas increased self-worth was reported by only a few participants in both groups. Diminished self-worth may be an important risk criterion to look at in this population. On the other hand, increased self-worth that may reflect an increased sense of personal strength often conceptualized as personal growth (Tedeschi & Calhoun, 2004), does not seem to be as common, calling into question the concept of posttraumatic growth as a common phenomenon following major loss (Wortman, 2004). Of note, realizing one's loss of independence was the top reported change in self-views for both groups, suggesting that independence is a key issue for all participants, independent of developmental context.

It is interesting that when it came to relationship changes, being dependent on others appeared to be somewhat more of an issue for the middle-aged group, despite the fact that many of the older adults might be more dependent on others overall due to other health problems. However, this may be due to an expectation for middle adulthood to be a life stage characterized by independence. Moreover, as the sample descriptives show, middle-aged adults were more likely to be unemployed due to vision loss and to feel financially unstable, which may have added to dependency on others as an issue in this group. Finally, it should be noted that the top reported relationship change, reestablishing ways of being with others, was equally central in both groups. This seems to be one important life change that is pervasive regardless of the developmental context. A more detailed discussion of relationship-related challenges and strategies used in response among adults with vision loss can be found in Wang and Boerner (2008).

Taken together, study findings suggest that if vision loss occurs during middle adulthood, it tends to turn life upside-down to a greater extent, and that it comes with the risk of negative long-term consequences, such as an inability to remain a productive member of society and be integrated into work-life. However, it seems like change can also take a positive turn, meaning that with a proper understanding of the situation, there may be potential for a positive long-term

outcome, such as a greater appreciation for life and the reevaluation of priorities. Therefore, it is important to understand that the implications of vision loss for people at different ages during adulthood can be very unique in some regards and similar in others. For example, the need to reestablish ways of being with others emerged as the top relationship change, and many relationship changes were negative for both groups. Thus, future work is needed to help better understand what this entails, what exactly characterizes these challenges, and how they can be dealt with.

Our study has several limitations, mostly pertaining to sampling issues that deserve mention:

1. Although no difference between the two age groups emerged in level of functional impairment, there was the difference in terms of eye disease (i.e., older participants all had macular degeneration, whereas there was more of a variety of eye diseases in the middle-aged group), and there were differences in some sample characteristics (e.g., more participants were married and unemployed in the middle-aged group, the middle-aged sample was more diverse in terms of race and ethnicity). Some of these differences reflect actual age group differences (e.g., older adults are more likely to be widowed), but if one wanted to ensure equal comparison groups, it would be preferable to stratify according to key sample criteria to ensure a “cleaner” comparison.
2. Our results could be biased or confounded by method of data collection (phone versus in-persons interviews). It is technically possible that the greater familiarity of the face-to-face interview situation prompts more openness in terms of participants’ willingness to share intimate life experiences. On the other hand, one might argue that not having the face-to-face contact reduces the need to make a positive impression on the interviewer. However, we would like to note that the length and level of detail of the narratives from the two studies is comparable, and that although the middle-aged group reported fewer positive and more negative changes overall, there were also instances in which the older participants seemed to paint a more negative picture (e.g., more negative life goal changes).
3. The generalizability of our findings may be limited because we have drawn on a population of people who all contacted a particular agency because of their vision loss. At the same time, this approach makes the sample more homogeneous, excluding the possibility that differences in the nature of reported life changes may be related to differences in agencies. Finally, we assessed retrospectively perceived change, an approach that always struggles with accuracy of memory. The next step to more adequately address this issue would be to look at the process of change over time with longitudinal data, in order to gain insight into the nuances and patterns of change over time.

In terms of clinical implications, study findings provide some cues as to what challenges may be more urgent to address in middle-aged versus older adults who experience a functional loss such as vision impairment. For example, career and self-worth issues seem more pressing to address in middle-aged adults with vision loss, whereas the ability to maintain or find new leisure activities may be more of an issue to address with older adults. Life changes such as loss of independence and perceiving a need to reestablish one's interpersonal relationships, on the other hand, appear to be central problems regardless of life stage. These insights can inform the development and design of support interventions, but they are also important as a general knowledge base for informal support providers, so that the family members and friends of those who experience vision loss can respond in helpful ways.

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