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Subjective Change and Its Consequences for Emotional Well-Being[1]

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*This study investigates the impact of subjective changes in the execution of the roles of spouse, worker, and parent on the level and structure of positive and negative affect. According to the self-theory of subjective change, perceived improvement and decline are unsettling because each violate standards of self-conception, but perceived stability satisfies the organismic desire for homeostasis. Therefore individuals who perceive more changes in themselves should report more negative and less positive affect, compared with individuals who feel they have remained the same. The context-dependence theory of affects also argues that the correlation of negative and positive affect is strong when individuals are distressed and modest when they are in homeostasis. Thus, the correlation of positive and negative should approach unity as individuals perceive more change in themselves. Data are from the MIDUS study and sample (*N *= 3,032) of adults between the ages of 25 and 74. Respondents completed scales of positive and negative affect, and evaluated their current and past (10 years ago) functioning as spouses (or close relationship), in work, and as parents (relationship with their children). The correlation of positive and negative affect approached unity at the highest levels of perceived improvement,* r *= −.93, and at the highest levels of perceived decline,* r *= −.90, but was modestly correlated at no change,* r *= −.52. Moreover, the level of positive affect was lower, and negative affect was higher, among adults who perceived more improvement as well as declines, compared with adults who remained the same.*

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Implications for the study of objective life events as well as health interventions are discussed.

Objective life events remain the centerpiece of the social science of health and well-being (Holmes & Rahe, 1967; Miller & Rahe, 1997). Because they demand readjustment from an organism that seeks or desires equilibrium, life events can be precursors to stress. Repeated and extensive exposure to the myriad of life events has been repeatedly shown to increase individuals' risk for affective disorders such as depression (Thoits, 1995; Turner, Wheaton, & Lloyd, 1995). However, the association of life event exposure with mental health outcomes remains modest.

As such, the life events theory of health has been amended to include subjective appraisal of live events, transitions, and experiences. Stress process theories argue that the perception of events and the perception of what those events have done to the individuals explain when and how objective events affect health outcomes (Lazarus & Folkman, 1984; Pearlin, Lieberman, Menaghan, & Mullan, 1981). Events perceived as threatening, uncontrollable, or unpredictable are more predictive of mental illness and physical disease outcomes (Thoits, 1995). Events that are perceived as unresolved also are stronger predictors of mental illnesses than are demands and events that an individual perceives as having been resolved (i.e., handled successfully and enlightened by the experience) (Thoits, 1994; Turner & Avison, 1992).

Although research emphasizes external pressures for organismic change, there is only a small but growing literature (e.g., Keyes & Ryff, 1999, 2000; Wethington, Cooper, & Holmes, 1997) on individual's perception of change and its consequences for mental health. Subjectively, change is an appraisal and feeling that one's traits or functioning are new or have been revised (Keyes & Ryff, 2000; Kiecolt, 1994). Individuals may appraise specific self-traits and decide they are a better or worse kind of person; individuals may evaluate specific facets of their functioning (e.g., physically) and decide their execution of tasks and roles in life is better or worse.

For an organism that may seek and desire equilibrium, the feeling and perception of change appears to be unsettling or distressing. For instance, adults who perceived more improvement as well as more declines in life domain functioning reported more depressive symptoms than did adults who perceived their functioning as stable over a 5-year period (Keyes & Ryff, 2000). We have argued that the self-system provides a persuasive account of the relationship of subjective change with mental health (Keyes & Ryff, 2000).

The present study seeks to extend the scope of the self-theory of subjective change. Toward that end, this study investigates the thesis that perceived change (improvement and decline) is unsettling in two ways. First, does perceived improvement predict higher levels of negative and lower levels of positive affect

when compared with perceived stability? Similarly, does perceived decline predict higher levels of negative and lower levels of positive affect when compared with perceived stability?

Second, does the association of positive and negative affect depend on the amount of perceived change? Evidence supporting the context-dependent theory of affect (Zautra, Potter, & Reich, 1997) suggests that the association of positive and negative affect increases as individuals' level of distress increases. When at relative rest (i.e., equilibrium), individuals' affective states tend to correlate modestly. If subjective change is unsettling, the correlation of positive and negative affect should increase as the amount of perceived improvement and perceived decline increase. If subjective stability is desirable to an organism desiring equilibrium, the association of positive and negative affect should be modest at levels of little or no perceived change. Explanations for these proposals emerge from the self-theory of subjective change.

SUBJECTIVE CHANGE AND THE SELF SYSTEM

The self is a system of interrelated parts that collects, evaluates, and reacts to information. This system consists of mechanisms that generate information, standards against which this information is evaluated, and a reactive system whereby the information is experienced hedonically. Individuals use a variety of mechanisms to collect information about themselves (Rosenberg, 1981); they use a variety of standards to judge whether that information is good or bad (Sedikides & Strube, 1997); individuals react affectively and cognitively to the quality (i.e., good or bad) of experiences and information (Zajonc, 1980).

The mechanism of temporal self-comparison generates information about personal change. Retrospectively, individuals compare some facet of themselves in the present (e.g., a trait, an ability) against the same facet in the past. Prospectively, individuals can anticipate change by comparing the present against conceptions of themselves in the near or distant future (see e.g., Markus & Nurius, 1986). Individuals then indicate whether and how much they have changed (i.e., "better" and "improved" or "worse" and "declined") or whether they have remained the same (Albert, 1977).[6]

As in the case of feedback received from others, information generated by and about oneself is evaluated against self-standards. That is, individuals seek to understand whether and to what degree the information is positive (i.e., "good"), negative (i.e., "bad"), or a mixture of both. Toward that end, research indicates

[6]How individuals decide they have changed remains an empirical question. Individuals may have affective reactions to their present and past selves, and the congruence of feelings toward past and present selves may be used to decide whether one has changed. Individuals may also employ more cognitive means for collecting information about performance and appearances, and employing theories about change to construct narratives of stability or change over time (see Ross & Conway, 1986).

that individuals may employ multiple standards toward a single experience or piece of information (Sedikedes & Strube, 1997; Swann, Griffin, Predmore, & Gaines, 1987). From the standpoint of change, the standards of consistency and enhancement (cf. growth) are particularly relevant.

Individuals desire self-consistency, which means individuals are motivated to maintain a consistent image of themselves over time. Research clearly shows that individuals seek others and situations that provide self-consistent information and feedback (Brown & McGill, 1989; Burke, 1991; Gecas & Burke, 1995; Jones, 1973; Lecky, 1945; Mackinnon, 1994; Swann & Brown, 1990). Inconsistent feedback motivates individuals to attempt to alter the situation or to modify other's opinions such that they will provide self-consistent feedback (Robinson & Smith-Lovin, 1992; Steele, Spencer & Lynch, 1993; Swann & Hill, 1982). Self-consistency may sustain individuals' beliefs that the world is coherent and controllable (Janoff-Bulman, 1992), and could provide confidence in one's future (Foote, 1951; Swann, 1990). Identity-interruption theory (Burke, 1991, 1996) also suggests that maintaining self-consistency could prevent the distress from interruptions of the organized process of self-perception.

Individuals also employ the self-enhancement standard to evaluate feedback, information, and to regulate behavior. Enhancement is the principle that individuals seek desirable, positive, or flattering information about themselves. People sometimes decide to change themselves, and seek experiences that cause internal changes that are self-enhancing (Kiecolt, 1994; Taylor, Neter & Wayment, 1995). Self-esteem and positive "self-illusions" about one's future and personal control are consistent and powerful predictors of physical as well as mental health (Taylor & Brown, 1988, 1994; Seligman, 1975, 1991).

According to the self-theory of subjective change, individuals evaluate perceived change against the self-standards to decide whether the information is good or bad or both. Information about the self, much like experiences, can be uniformly good or bad, or it can be a mixture (cf. Rosenberg, 1990) of good and bad. The perception of being the same should be most desirable because it coincides with the organismic desire for equilibrium or homeostasis (see Burke, 1991).

The perception of decline, however, should be evaluated as uniformly bad. Perceived decline is the acknowledgment of an inconsistency in oneself and this information should also be unflattering. Perceived decline therefore violates both self-standards. On the other hand, perceived improvement should be evaluated as both good and bad. Perceived improvement should be personally flattering. However, the feeling of improvement is the acknowledgment of an inconsistency in oneself. Thus, perceived improvement satisfies the self-enhancement standard but it violates the self-consistency standard.

The theory of subjective change argues that individuals respond to information and feedback through two relatively distinct channels: emotion and cognition. When information or an experience can be judged as uniformly bad or good,

individuals' feeling and thoughts about that experience are consistent. Uniformly good experiences result in positive feelings and positive thoughts about oneself and one's life. Similarly, uniformly bad experiences result in negative feelings and negative thoughts about oneself and life.

When feedback and information about oneself are a mixture of good and bad, feelings and thoughts become incongruent. Swann and colleagues (1987) found that feelings and thoughts were in alignment for individuals with high esteem who had received flattering feedback. These individuals felt good about this experience and they were confident, for example, about this information. However, feelings and thoughts were not in alignment for low esteem individuals who had received flattering feedback. These low esteem individuals felt good about the experience but were mistrusting of the feedback and doubtful of its relevance.

In the first test of the theory of subjective change, Keyes and Ryff (2000) found that adults who perceived their functioning over six domains of life as having remained the same had the lowest levels of depressive symptoms, and the highest levels of life satisfaction and self-acceptance. In contrast, adults who perceived more declines when compared with more stable functioning, reported more depressive symptoms, lower life satisfaction, and less self-acceptance. The adults who had perceived more improvements in their functioning reported more depressive symptoms, lower levels of self-acceptance, but more personal growth and equal levels of life satisfaction as adults who had remained the same. However, to extend the scope of the theory of subjective change, this study seeks to connect it to the outcome and structure of emotional well-being.

EMOTIONAL WELL-BEING: POSITIVE AND NEGATIVE AFFECT

What is emotional well-being, and how might subjective change affect the levels and structure of emotional well-being? Most generally, well-being is individuals' assessments of the quality of their lives (Diener, 1993). Emotional well-being is a specific dimension of subjective well-being, reflecting the degree to which individuals self-report the experience of symptoms of positive and negative affect. Moreover, emotional well-being is a subset of symptoms used to diagnose states (e.g., "flourishing") of mental health (Keyes & Lopez, in press).

Since Bradburn (1969), emotional well-being has been conceived of as bidimensional, consisting of two correlated dimensions. Conceptually, emotional well-being is the balance of positive and negative affect. When positive affect predominates over negative affect, quality of life is considered to be high; when negative affect predominates over positive affect, life quality is considered poor. However, the debate over whether emotional well-being is a unidimensional or a bidimensional construct continues to this day. Are positive and negative affects opposite ends of a single continuum (i.e., highly correlated), or are positive and negative feelings relatively independent (i.e., modestly correlated) dimensions of well-being?

Evidence supports the unidimensional (Russell & Carroll, 1999) *and* the bidimensional (Diener & Emmons, 1984; Watson & Tellegen, 1985) model. However, some scholars argue that the inconclusiveness of the evidence can be assigned to artifacts of measurement. Prior to the demonstrated validity of frequency as a response choice (see Diener, Sandvik, & Pavot, 1991), measures of emotional well-being tended to confound frequency and intensity of emotional experience. Measures of the intensity of positive affect and of negative affect are strong and positive; measures of the frequency of the experience of symptoms of positive and negative affect are negative and tend to be modest (Diener, Larson, Levine, & Emmons, 1985). Nonrandom measurement errors between indicators of positive and negative affect may also suppress the negative correlation between the latent constructs of positive and negative affect (Green, Goldman, & Salovey, 1993).

Recently, Zautra et al. (1997) proposed the context-dependence theory of affects. These authors argue that the inconclusiveness of evidence for unidimensional and bidimensional models of affect depends on the state of the organism. When individuals are experiencing high levels of demands or are distressed, the structure of affect becomes unidimensional. The correlation of positive and negative affect is highly correlated among individuals who are stressed, whereas this correlation should be modest among individuals who are not stressed. Zautra et al. (1997) found a significantly larger negative correlation of positive and negative affect among individuals who had experienced a high number of life events in the past week, compared with those who had experienced few life events in the past week.[7]

The context-dependent theory of affects provides an alternative to the impasse of the structure of emotional well-being and provides an indirect method for examining the impact of experiences such as subjective change. According to self-theory, any perceived change should be unsettling because it is evaluated against multiple self-standards, at least one of which is violated by subjective change. This leads to two hypotheses. First, perceived changes will affect levels of emotional well-being. Specifically, adults who report more subjective *improvement* should report higher levels of negative and lower levels of positive affect when compared with adults who have remained the same. Adults who report more subjective *decline* should report higher levels of negative and lower levels of positive affect when compared with adults who have remained the same.

Second, perceived changes should affect the structure of emotional well-being. Based on the context-dependent theory of affect (Zautra et. al., 1997), the correlation of negative and positive affect should approach unity at the highest levels of perceived improvement and decline. However, positive and negative affect should be modestly correlated among adults who perceive little or no changes in

[7]Zautra et al. (1997) employed information processing theory to explain how distress influences the structure of affect. They argued that high stress promotes adaptive thinking and responses to demands (i.e., unifying one's thoughts about and towards the emotional system as one).

themselves. In other words, the structure of emotional well-being will become unidimensional at high levels of perceived change; the structure of emotional well-being should be bidimensional at lower levels of perceived change.

METHOD

Sample

Data are from the MacArthur Foundation's Successful Midlife National Survey. This survey involves a random-digit-dialing sample of noninstitutionalized English-speaking adults aged between 25 and 74 years, living in the 48 contiguous states, whose household included at least one telephone. In the first stage of the multistage sampling design, the investigators selected households with equal probability via telephone numbers. At the second stage, they used disproportionate stratified sampling to select respondents. The sample was stratified by age and sex; males between ages 65 and 74 years were over-sampled.

Field procedures were initiated in January 1995 and lasted approximately 13 months. The respondents were contacted by professional personnel; those who agreed to participate in the entire study took part in a computer-assisted telephone interview lasting 30 min on average. Respondents were then mailed two questionnaire booklets requiring about 1.5 hr on average to complete. As incentives for participation in the complete study, each respondent was offered $20, a commemorative pen, periodic reports of study findings, and a copy of a monograph on the study. The sample consisted of 3,032 adults, with a 70% response rate for the telephone phase and an 87% response rate for the self-administered questionnaire phase, or a combined response rate ($.87 \times .70$) of 61%.

Measures

Temporal Self-Comparisons

Respondents evaluated their functioning in work as a spouse (or in a close relationship) and as a parent at the time of the interview, and then their functioning in those same roles 10 years ago. All items measuring perceived functioning were based on a 0 to 10 scale, where 0 was the anchor labeled "worst" and 10 was the anchor labeled "best," and respondents indicated whether they felt this was the worst possible situation or the best possible situation. In the self-administered questionnaire, respondents were first asked, "Please think about the work situation you are in now, whether part-time or full-time, paid or unpaid, at home or at a job." Then, respondents were asked, "Looking back ten years ago, how would you rate your work situation?" Next, respondents were asked "How would you rate your overall relationship with your children these days?" Then, "Thinking back ten years ago, how would you rate your overall relationship with your children?"

Last, respondents were asked, "How would you rate your marriage or close relationship these days?" Then, "Looking back ten years ago, how would your rate your marital or close relationship situation?" Only respondents who had biological, stepchildren, or adopted children were asked about their parental functioning, and only married respondent or those involved in a (self-nominated) "marriage-like partnership" answered the questions about spouse-functioning.

To create the change variables, current functioning was subtracted from past functioning. Respondents who were not married (or not in a "marriage-like" relationship) were coded zero for the current and past-functioning variables. Similarly, respondents who were not parents were coded zero for both current and past functioning variables. In this way, all respondents were included in the multivariate analyses, and regressors for marital (close relationship) status as well as parental status were included in the regressions to adjust for the inclusion (i.e., imputation) of nonparents and unmarried respondents.

Table I reports the descriptive statistics for the perceived change and current functioning variables in the roles of work, spouse, and parent. There is a tendency for adults who perceived improvement in one role to also have perceived improvement in another role. For example, perceived change in work correlated 10 ($p < .001$) with perceived change in marriage, indicating that respondents who felt they had made improvements in work also tended to feel they had made improvements in their marital (or close) relationship. However, perceived changes in the roles of work, spouse, and parent are small, indicating that subjective change in roles in independent. Moreover, adults who perceived improvement in a role also tended to report higher levels of current functioning in that, but not in other roles. For example, perceived change in work correlated .64 ($p < .001$) with current functioning in work, but perceived change in work correlated very modestly with current functioning in the role of spouse ($r = -.10$, $p < .001$) and parent ($r = .05$, $p < .01$).

Table I. Descriptive Statistics of Subjective Change and Current Functioning in Roles

	1	2	3	4	5	6
1. Work change	—	.09***	.10***	.65***	.01	.07**
2. Parent change		—	.07***	.07**	.53***	.08***
3. Spouse (close relationship) change			—	.02	.02	.43***
4. Current work				—	.14***	.23***
5. Current parent					—	.25***
6. Current spouse (close relationship)						—
Mean	0.34	0.20	1.1	7.2	8.6	8.0
SD	3.1	1.6	2.9	2.4	1.5	2.1

Note. The correlations, and the means and standard deviations for the parent and spouse (close relationship) variables, excluded nonparents and unmarried respondents; the mean for the work variables includes the entire sample.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

Emotional Well-Being

Respondents indicated how much of the time during the past 30 days—all, most, some, a little, or none of the time—they felt six negative and six positive symptoms of affect. The symptoms of negative affect were (1) so sad nothing could cheer you up, (2) nervous, (3) restless or fidgety, (4) hopeless, (5) that everything was an effort, and (6) worthless. The symptoms of positive affect were (1) cheerful, (2) in good spirits, (3) extremely happy, (4) calm and peaceful, (5) satisfied, and (6) full of life.

The positive items were summed to form a scale scored in the direction of more positive affect. The negative affect items also were summed to form a scale and scored in the direction of more negative affect. The internal reliability of the positive affect scale is .91 and that of the negative affect scale is .87. Positive and negative affect correlated $-.64 (p < .001)$. Details about the sources of the affect items used in the MIDUS can be found in Mroczek and Kolarz (1998, p. 1337).

Control Variables

For statistical control and efficiency, indicators of fixed characteristics were measured and employed as covariates in the multivariate analyses. Age was measured as the data of birth and then subtracted from the year of the telephone interview to create a continuous variable. For analyses, age was coded into the cohorts of ages 25–34, 35–44, 45–54, 55 to 64, and 65 to 74. Dummy variables indicating respondents' gender, race (white vs. minority), marital status (currently married or in a "marriage-like" partnership vs. all others), employment status (part-time and full-time vs. all others), and parental (biological, step, or adopted) status were also employed as control variables.

In turn, respondents indicated their educational attainment and current income, both of which are measures of socioeconomic standing. Respondents indicated the highest grade or year or schooling they had completed at the time of the interview. Education is coded from 1 (less than high school), 2 (high school), 3 (some college; vocational), 4 (bachelors degree), to 5 (master's or Ph.D. degree). Income is measured as the sum of respondents' self-reported (a) own personal income, (b) income from a spouse or partner, and (c) any additional household income from all other sources during the past year. All sources of income were summed to form a continuous measure of total household income.

RESULTS

Is perceived change unsettling? The first hypothesis draws on the context-depedent theory of affects (Zautra et al., 1997), which posits that the structure of emotional well-being should depend on the individuals' state of challenge or

Table II. Zero-Order Correlations of Positive and Negative Affect by Amount of Perceived Change

Type of subjective change	Amount of subjective change	*n*	Correlation	*z*-Transformed correlation
Declined	14 or more units	9	−.90***	
Declined	10–13 units	43	−.63***	−.75
Declined	6–9 units	135	−.58***	
Declined	3–5 units	163	−.73***	
Declined	1–2 units	440	−.63***	
Same	0 change	210	−.52***	−.59
Improved	1–2 units	721	−.63***	
Improved	3–5 units	578	−.64***	
Improved	6–9 units	311	−.52***	
Improved	10–12 units	92	−.58***	−.78
Improved	13–14 units	28	−.83***	
Improved	15–17 units	9	−.89***	
Improved	18 or more units	7	−.93***	

Note. Findings based on 2,168 respondents who were married (or in a "marriage-like" close relationship) and who were parents; nonparents and unmarried, who did not evaluate their spouse and parental role functioning were omitted from this analysis.
* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

distress. As such, the first hypothesis from the self-theory of subjective change predicts that the correlation of positive and negative affect is negative and approaches unity as the amount of subjective change increases. Table II presents the zero-order correlation of positive and negative affect by levels of perceived change and perceived stability. As predicted, the correlation of affects is very high (−.90 or greater) among individuals who reported the highest amount of perceived decline and perceived improvement. In comparison, the correlations of positive and negative affects are between −.52, at no perceived change, and −.63 among individuals who perceived a small amount (i.e., 1–2 units) of decline and improvement.

The final column in Table II contains the *z*-transformed correlations. The four correlations of perceived decline (from 3 to 5 units up to 14 or more units) were transformed into *z*-scores and averaged together and then transformed back into the zero-order correlation. Thus, at higher levels of perceived decline, the average correlation of affects is −.75. Using the same procedure, the correlations of a little change (1 to 2 units of change) and the correlation between affects for individuals with no change were averaged together, which resulted in a correlation of −.59 between positive and negative affect. The average correlation of affects accross the levels of higher levels of perceived improvement is −.78. The *z*-test comparing the average correlation for high perceived declined against little or no change (i.e., .75–.59) resulted in a *z*-statistic of 2.76, $p < .01$. The association of affects at levels of higher perceived decline is much stronger than at levels of little change or no perceived change. In turn, the *z*-test comparing the average correlation for high perceived improvement against little or no change (i.e., .78–.59) resulted in

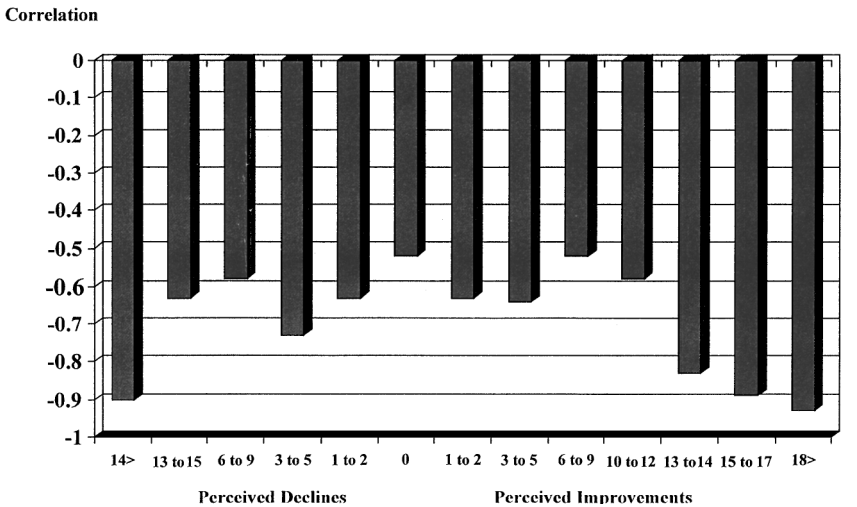

Fig. 1. Correlations of positive and negative affect by amounts and type of perceived changes (all correlations statistically significant at $p < .01$, two tailed).

a z-statistic of 3.8, $p < .001$. Thus, the association of positive and negative affect at levels of higher perceived improvement is also much stronger than at levels of little change or no perceived change.

The context-dependence of affects is illustrated in Fig. 1, which arrays the negative correlation of affects by the amount of perceived change. The graph depicts the expected u-shaped curve in which the association of positive and negative affect becomes increasingly strong at the highest levels of perceived change, but it is modest at low levels of perceived change or stable functioning. When individuals perceived a high level of improvement or decline, the structure of emotional well-being appears to be unidimensional (i.e., very strong correlation): The presence of positive affect implies the absence of negative affect. However, at low levels of perceived change and when individuals perceived no change, the structure of emotional well-being was bidimensional (i.e., modest correlation).

Next, self-theory led to the prediction that emotional well-being should be highest among adults who report little or no change, because they have maintained the desirable state of equilibrium. When compared with stable functioning, perceived changes should predict higher levels of negative and lower levels of positive affect. Toward that end, positive and negative affect were separately regressed onto the perceived change variables as well as the controls (i.e., gender, parental status, marital status, employment status, age, race, education, and income). In stepwise fashion, Model 1 contained only the perceived change and control variables. In Model 2, the variables measuring perceived current levels of functioning in each

Table III. OLS Regressions of Positive Affect onto Subjective Change ($n = 2{,}900$)

	Model			
	1		2	
Subjective change	*b*	*B*	*b*	*B*
Decline in spouse	−.51***	−.11	.13	.03
Decline in parent	−.60***	−.13	.01	.02
Decline in worker	−.40***	−.17	.12*	.05
Improvement in spouse	−.04*	−.04	−.04*	−.04
Improvement in parent	−.01	−.02	−.03	−.01
Improvement in worker	−.03	−.01	−.14**	−.06
Current spouse			.57***	.53
Current parent			.46***	.38
Current work			.59***	.31
Intercept	20.2		16.2	
R^2	.10		.20	

Note. All models controlled for gender, parental status, marital status, employment status, age, race, education, and income. All estimates are based on the unweighted sample because conclusions were unchanged with the sample weighted.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

role were introduced to investigate whether perceived improvement, in particular, predicted emotional well-being net of current functioning. Theory suggests that current functioning should partially explain how perceived changes affect emotional well-being, because adults who report decline tend to see themselves functioning worse, whereas adults who report more improvements tend to see themselves as functioning slightly better, than adults who have remained about the same.

Table III contains the OLS regression estimates of the relationship of perceived decline and perceived improvement with levels of positive affect. As predicted, perceived declines in functioning in each role predicts a decline in positive affect. Although perceived improvements in parents and workers are unrelated to positive affect, perceived improvement in the role of spouse is negatively associated with positive affect. In Model 2, current role functioning was entered and, as should be expected, positive affect increased dramatically as levels of current functioning increased. When current functioning was entered into the regression equation, the effects of perceived declines were reduced to zero, except for decline as a worker, which reversed sign and became modestly associated with increased positive affect. Thus, perceived declines predict lower levels of positive affect because adults who feel they have declined also report lower levels of current functioning than do adults who have remained about the same. On the other hand, perceived improvement as a spouse remains statistically significant, and perceived improvements as a worker becomes significant in Model 2. Thus, as predicted and net of current functioning, more perceived improvements (in spouse and work)

Table IV. OLS Regressions of Negative Affect onto Subjective Change ($N = 2{,}900$)

	Model			
	1		2	
Subjective change	*b*	*B*	*b*	*B*
Decline in spouse	.34***	.08	.07	.03
Decline in parent	.31***	.13	.03	.02
Decline in worker	.41***	.20	.01	.02
Improvement in spouse	.07***	.07	.08***	.07
Improvement in parent	.15*	.04	.14*	.04
Improvement in worker	.08*	.04	.15***	.07
Current spouse			−.28***	−.31
Current parent			−.27***	−.26
Current work			−.44***	−.27
Intercept	11.1		14.1	
R^2	.12		.18	

Note. All models controlled for gender, parental status, marital status, employment status, age, race, education, and income. All estimates are based on the unweighted sample because conclusions were unchanged with the sample weighted.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed).

are associated with lower levels of positive affect, compared with adults whose functioning has remained the same.

However, does subjective change also predicts levels of negative affect? Table IV presents the OLS regression estimates. As predicted, perceived declines in functioning in each role predicted an increase in negative affect. Moreover, levels of negative affect increased as adults perceived more improvement in each role. In Model 2, current role functioning was entered and levels of negative affect decreased as levels of current functioning in each role increased. When current functioning was entered into the regression equation, the effects of perceived declines were reduced to zero. Perceived declines therefore predict higher levels of negative affect because adults who feel they have declined also report lower levels of current functioning than do adults who have remained about the same. However, even with current functioning controlled, perceived improvements as a spouse, a worker, and as a parent still predicted elevated levels of negative affect.

DISCUSSION

When drawn together, the self-concept literature presents a picture of the self as a system. As a system, the self consists of a repertoire of mechanisms—reflected appraisals, social comparisons, attribution and behavioral perceptions—to collect information about itself in relation to the social world. However, the

self also consists of the mechanism of temporal self-comparison, which collects information about itself through time.

In turn, the self consists of a collection of standards against which it evaluates the information collected through the mechanisms. The purpose of self-standards is to adjudicate the hedonic quality of the information: Is it "good," "bad," or a mixture of both? Toward that end, the extant literature suggests that individuals may employ multiple standards to a single experience or piece of information. To understand the hedonic quality of perceived change, the self-theory of subjective change posits that individuals employ the standards of self-enhancement and self-consistency. Perceived improvement and perceived decline violate the standard of self-consistency over time. However, perceived decline also violates the standards of self-enhancement, whereas perceived improvement satisfies that standard. In contrast, stress theory suggests (e.g., Lazarus & Folkman, 1984) that individuals desire homeostasis, and the perception of remaining the same person may satisfy the organismic desire for equilibrium.

Last, the self-theory of subjective change argues that self is a system of two independent reactive channels. Individuals react to experience and information affectively and cognitively, which have been shown to be independent channels (see Swann et al., 1987; Zajonc, 1980, 1984). It is therefore possible to feel good about experiences and yet think that the experience was bad, or to think that an experience was good but feel bad about having had that experience (see Swann et al., 1987).

The independence of reactive channels is particularly relevant when multiple outcomes are employed and which tap into cognitive and affective domains. In the present study, the outcome of emotional well-being measured a single domain which tapped mostly into the affective realm. Thus, and as predicted, individuals who perceived more declines and who perceived more improvements also reported lower levels of positive affect and higher levels of negative affect when compared with adults who saw themselves remaining the same.

In the prior study of this theory (Keyes & Ryff, 2000), we employed affective and cognitive outcomes measures, and found that perceived improvements were associated with "mixed" mental health profiles. Individuals who perceived more improvements as well as declines reported more depressive symptoms than did adults who remained about the same. However, adults who perceived more improvements reported higher levels of the psychological well-being dimension of personal growth, compared with adults who remained the same. Moreover, in the prior study, levels of life satisfaction were similar among adults who perceived themselves remaining the same and adults who perceived more improvement. Thus, when mental health outcomes reflect how people think about their lives and how they feel about life, perceived improvement may be connected with mixed mental health profiles when compared with perceived stability.

The present study extended the theoretical scope to include the relationship of subjective change with the structure of emotional well-being. The correlation of

positive and negative affect approached unity (i.e., −.90 or greater) at the highest levels of perceived decline and perceived improvement. As such, the structure of emotional well-being appears to be unidimensional among individuals who see themselves as having changed a lot. However, the correlation of positive and negative affect was modest (i.e., between −.50 and −.60) at the lowest levels of perceived change and at no change. When individuals do not feel changed, which means they may be in a state of equilibrium, the structure of emotional well-being is bidimensional, with two correlated but independent dimensions. In short, findings were consistent with the self-theory of change which predicts that any change is unsettling. In turn, findings were consistent with the context-dependence theory of affects (Zautra et al., 1997), which predicts that the association of positive and negative affect increases as distress increases.

To date, two studies employing different nationally representative samples, employing different measures of subjective change, and using different outcomes measures of mental health, lend replicative support for the self-theory of subjective change. These findings may also begin to explain how stressors, or objective life events, affect mental health and well-being. Studies have consistently shown that negative life events are more strongly correlated with health outcomes than positive life events (Thoits, 1983; 1995). The current findings suggest two interpretation and directions for future research on positive life events. First, perhaps only positive life events that lead to the perception of improvement are associated with health outcomes. Second, because perceived improvement satisfies one and violates another self-standard, and individuals can feel one way (e.g., positively) but think another way (i.e., negatively), future research on positive life events should also include multiple outcomes that measure affective and cognitive dimensions of mental health.

More generally, the study of subjective change may begin to elucidate reasons that people do not seek positive changes, and perhaps why positive changes may not endure. The intent of many health interventions is to get people to change health habits and lifestyle. Perhaps as part of the intervention, or maybe as a byproduct, intervention may cause individuals to view themselves as a new or a revised person. Perceived change may be a blessing and a curse for health interventions, because the current research on subjective change suggests that perceived improvement can elevate some aspects of well-being (e.g., personal growth) and mental illness (e.g., dysphoric symptoms and negative affect). Individuals who feel like having grown personally and at the same time feeling depressed may be less likely to adhere to the positive lifestyle and health habits' changes. In turn, such individuals may be less likely to seek positive changes in themselves and their lives after having felt depressed about past improvements.

A promising line of research may be the connection of subjective change with the efficacy of health interventions and talk versus pharmacological therapies. One speculation based on the current study is that the most efficacious interventions prompt individuals to change how they behave but prevent them from seeing

themselves as different or revised people. One may also inquire whether talk or drug therapies are equally likely to promote subjective changes in patients. The human organism appears to desire a state of equilibrium. Public health, on the other hand, documents myriad lifestyles and habits that jeopardize health and therefore require change. Interventions and research that take more seriously the assessment and understanding of subjective change may prove to be more cost-effective and long-lasting.

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