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The Influence of Age on Emotion Regulation Strategies and Psychological Distress

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Background: To date there is promising, yet limited, evidence to suggest that differences exist between older and younger adults' emotion regulation styles. **Aims:** The study aimed to explore emotion regulation style across the adult lifespan by assessing whether self-reported reappraisal, or suppression, differs across age groups, and how these emotion regulation strategies may impact upon psychological distress. **Method:** Three hundred and seventeen younger, 175 middle-aged and 85 older adults' emotion regulation styles and levels of psychological distress were measured using self-report questionnaires and examined using a cross-sectional design. **Results:** The findings suggest that, compared to younger adults, older adults make greater use of suppression, the emotion regulation strategy. This greater use of suppression by older adults was not related to increased levels of psychological distress. By contrast, younger adults who reported high levels of suppression reported higher levels of psychological distress. In addition, older adults reported less anxiety and stress than younger adults, with no age differences in depression. **Conclusions:** Findings suggest a possible decoupling of the use of emotional suppression and psychological distress with age. Suppression may be a useful form of emotion regulation for the stressors experienced in later life and, arguably, therefore may not be associated with the negative outcomes observed in younger adults.

Keywords: Emotion regulation, well-being, psychological distress, age

Introduction

As people age, they report changes in the experience of emotion. Compared to younger adults, older adults appear to experience fewer negative emotions (Carstensen, Gottman and Levenson, 1995), lower emotional intensity (Barrick, Hutchinson and Deckers, 1989; Lawton, Kleban, Rajagopal and Dean, 1992), are less emotionally expressive (Lawton et al., 1992),

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and have more emotional control (Lawton et al., 1992; Gross et al., 1997). One possible explanation for these changes is that older adults use different emotion regulation strategies compared to younger and middle-aged adults.

Emotion regulation includes both conscious and unconscious strategies that aim to increase, maintain, or decrease an emotional response (Gross, 1999). These strategies influence which emotions are experienced, and when and how they are experienced (Gross, 2001, 2002; Gross et al., 1997). The current study focuses on the relatively impoverished research areas of two emotion regulation strategies, cognitive reappraisal and suppression.

Reappraisal is a cognitive change strategy that involves selecting one of a number of possible alternative, and more benign or positive, explanations for a situation (Gross, 2001). There are well-documented benefits to using reappraisal. Garnefski, Kraaij and Spinhoven (2001) showed that a self-reported tendency to reappraise real-life experiences was negatively related to depression and anxiety. Reappraisal also benefits individuals with chronic pain (Affleck and Tennen, 1996), the bereaved (Davis, Nolen-Hoeksema and Larson, 1998), survivors of traumatic events (King and Miner, 2000) and pre-operative patients (Callaghan and Li, 2002; Cheung, Callaghan and Chang, 2003). Reappraisal decreases the emotional experience and reduces negative expressive behaviour, but it leaves positive expressive behaviour intact (Richards and Gross, 2000). There is evidence to suggest that older adults use cognitive reappraisal more than younger adults. In a retrospective study, John and Gross (2004) asked 106 women in their early 60s to complete the Emotion Regulation Questionnaire (ERQ; Gross and John, 2003) in relation to how they respond to emotions now and how they used to respond to emotions in their 20s. As predicted, participants reported more use of cognitive reappraisal now than in their 20s. Although retrospective accounts are highly problematic, John and Gross (2004) provide converging evidence in another study that demonstrated that 735 20-year-old women reported responses that were similar to the older group's self-report of their emotional responses as young women in the earlier study. Further evidence is provided by Brandtstädster and Renner (1990), who found that older adults were more likely than younger adults to agree with statements that indicated the use of reappraisal, such as "I usually find something positive even after giving up something I cherish". Furthermore, in response to stressful situations, older adults make greater use of positive reappraisal than younger adults, who report more confrontational coping (Folkman, Lazarus, Pimley and Novacek, 1987).

Taken together, therefore, these studies suggest that reappraisal has positive gains and that it is used to a greater extent by older than by younger adults. The emotion regulation strategy of suppression, however, has attracted much less research than reappraisal. Suppression describes the process of inhibiting responses to an emotion. The literature refers to two different types of suppression: expressive suppression and thought suppression. Expressive suppression describes the act of suppressing the behavioural responses that may convey emotion, such as crying. Thought suppression refers to individuals' attempts to inhibit certain thoughts in order to avoid subsequent negative affect.

The majority of research in this area has focused on expressive suppression, which is associated with lower levels of social support, poorer coping, and increased risk of depression (Higgins, Bond, Klien and Strauman, 1986). In younger adults, the use of expressive suppression has no impact on the strength of emotions experienced, but it decreases emotional expression (Gross and John, 2003). It also impairs memory, as the act of hiding one's feelings exhausts cognitive resources (Richards and Gross, 2000).

All the above studies have been restricted to younger aged samples, although the findings have been generalized to the whole population. However, investigations that include older adults offer a more complex picture of the role of expressive suppression. Magai, Consedine, Krivoshekova, Kudadjie-Gyamfi and McPherson (2006) compared the effects of age on suppression during a relived emotion task. Only older adult participants produced significantly reduced emotional expression (as measured by emotion words in subsequent narratives). The use of expressive suppression in older adults was associated with lower expression of sadness in narratives. This was not found in middle-aged or younger adults' narratives (Magai et al., 2006).

Evidence of an age shift in the use of expressive suppression is scarce, with just two published studies supporting this claim. John and Gross' (2004) study, described above, found that older adults reported less use of expressive suppression than participants who were in their 20s. One difficulty with this research is John and Gross's (2004) claim that they are tapping into expressive suppression alone. As the research does not directly explore what participants are actually doing when asked to suppress their emotions, it is not possible to know whether participants are using expressive suppression exclusively. They might, for example, be trying to suppress the experience of the emotion as well as its expression. In parallel to the research literature on expressive suppression, there is limited evidence to support the idea that there is an age shift in the use of thought suppression. Cheavens, Rosenthal, Banawan and Lynch (2008) reported less use of thought suppression by older, compared with younger, adults with and without psychiatric co-morbidity.

Taken together, the evidence suggests that reappraisal is generally associated with more positive outcomes than suppression. It also suggests that older adults make greater use of reappraisal and less use of suppression than younger adults. These findings are consistent with socio-emotional selectivity theory (Cartsensen, Issacowitz and Charles, 1999), which proposes that, as adults age, they increasingly experience an awareness of time being limited and so shift their motivational goals. Goals that focus on the future, such as knowledge acquisition, become less important. Instead, they focus on changes to emotional well-being and meaningful emotional aspects of life. A time limited perspective may also lead to increased use of strategies to cope with stresses in the present, rather than focusing on problem-solving barriers to future outcomes (see e.g. Heckhausen and Schutz, 1995; John and Gross, 2004). Studies with younger people with terminal illness show that they also use more emotion-focused coping strategies than their healthy peers (Carstensen and Fredrickson, 1998). This suggests that a limited time perspective alters an individual's goals towards an increased focus on, and attempt to cope with, the present, rather than focusing on future goals. Support for this idea comes from a study of mental representations of social partners in older and younger adults (Fredrickson and Carstensen, 1990).

Gender may also influence emotion regulation. Young males tend to use expressive suppression more than young females, whereas no differences have been found in the use of reappraisal (Gross and John, 2003). Jorm (2000) reviewed research that showed that trends in well-being were different when males and females were analysed separately, with males and females differing in the peak age of prevalence of disorders across the studies. Overall, women reported more negative affect than men, especially sadness and anxiety (Costa et al., 1987; Fujita, Diener and Sandvik, 1991). Additionally, women were almost twice as likely as men to suffer from depression or from anxiety disorders (Nolen-Hoeksema, 1990; Reich, 1986).

Aims

To date there is promising, yet limited, evidence to suggest that differences exist between older and younger adults' emotion regulation styles. John and Gross (2004) have postulated that suppression is more likely to be used by younger adults and that reappraisal is more likely to be used by older adults. The current study aimed to explore this proposed shift in emotion regulation style across the adult lifespan by assessing whether self-reported reappraisal, or suppression, differs across age groups, and how these emotion regulation strategies may impact upon psychological distress.

Specifically, the study tested the hypothesis that older adults would report greater use of reappraisal than younger adults, whereas younger adults would report greater use of suppression. Given that gender differences have been reported in the use of suppression in younger adults (Gross and John, 2003), the study also considered gender differences in patterns of emotion regulation.

In addition, given that different emotion regulation strategies have different outcomes in terms of wellbeing, the relationship between emotion regulation and depression, anxiety and stress was investigated. We proposed that greater suppression would be associated with higher levels of psychological distress (anxiety, depression and stress). Again, we explored gender differences in line with the findings in the literature (Jorm, 2000).

Method

Ethics

Ethics committee approval was obtained from the University of Southampton School of Psychology Ethics Committee and the study adhered to ethical guidelines.

Participants

Participants were non-clinical, community dwelling adults aged between 18 and 91 years, who were recruited online through a university questionnaire site and through a volunteer list created by university research staff. We also recruited participants through voluntary organizations and through an opportunity sample of personal contacts. Students were recruited from a participant pool and were awarded credits for taking part in the study. Three hundred paper questionnaires were handed out and 169 (56%) were returned. We do not know how many individuals were invited to complete the online questionnaire as it was advertised to undergraduate students, who were invited to share it with others. Younger adults were more likely to complete the questionnaire online than on paper (296 compared to 21) whilst middle-aged adults were more similar in their response type (102 online versus 73 on paper) and older adults were more likely to complete the questionnaire on paper (10 online versus 75 on paper; 3 participants who completed online and 1 on paper declined to give their age). In total, 581 questionnaires were returned.

Participants were recruited aged between 18 and 91 years, mean 37.11 years (*SD* 20.55); 472 (81.2%) were female. Partial completion of demographic data (7 participants did not give their gender, 2 did not provide ethnicity data, and 4 their age) is reflected in lower *N* values in the analyses that follow. A further 12 failed to complete any of the ERQ questions, and 32 the DASS. Analysis of the remaining cases revealed that no variable had more than four cases

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Table 1. Participant demographic information ($N = 581$)

	Younger adults (18–29 years) $M = 22.15 \pm 3.35$ $n = 317$	Middle-aged adults (30–64 years) $M = 49.42 \pm 2.15$ $n = 175$	Older adults (65–91 years) $M = 74.28 \pm 6.33$ $n = 85$
Gender:			
Female	278	130	61
Male	37	42	23
Ethnicity:			
White/White British/White Irish	285	170	82
Irish traveller	7	1	0
Asian Indian	4	4	1
Asian Bangladeshi	2	0	0
Black Caribbean	2	0	0
Other Black	4	0	0
Mixed White/Black Caribbean	3	0	0
Mixed White/Black African	2	0	0
Mixed White/Asian	2	0	0
Mixed any other	3	0	1
No comment	1	0	1

Note: Gender not available for 7 participants. Age for 4, and Ethnicity for 2

(0.7%) with missing data. Accordingly, Estimation Maximization was used to replace missing values.

We constructed three different age-groups based on similar groupings made in other studies in the literature (e.g. Mather and Carstensen, 2003) and by considering different life stages (e.g. over 65 being retirement age onwards). The three groups were: younger adults (participants aged between 18–29 years), middle-aged adults (30–64 years), and older adults (65 years+). Sample size analysis in G Power using a medium effect size ($f = .25$), an alpha of .05 and power of 0.8, showed that the total sample size required was 159, suggesting a minimum of 53 participants per group. Given that the study's smallest group contained 75 participants in any one analysis, this suggests that the subsequent analyses had adequate power to detect effects. As is common, given the preponderance of women in undergraduate psychology courses (from which the majority of our younger adult sample was recruited) and in older adult samples, women were in the majority in both of these age groups. Table 1 shows the age, gender and demographic details of the three, final groups.

Measures and questionnaires

The Emotion Regulation Questionnaire. (ERQ; Gross and John, 2003) is a 10-item measure that assesses the use of cognitive reappraisal and expressive suppression. Participants respond to questions about emotional experience and expression using a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). An example of a question assessing suppression is "when I am feeling positive emotions, I am careful not to express them" and an example of reappraisal is "when I want to feel more positive emotions (such as joy or

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amusement), I change what I'm thinking about". The reappraisal score ranges from 6 to 42 and the suppression score from 4 to 28. Higher scores indicate more reappraisal and more expressive suppression, respectively. Reported alpha reliabilities are .79 for the reappraisal and .73 for the suppression subscale (Gross and John, 2003). Internal consistency in this study was good; reappraisal $\alpha = .82$; expressive suppression $\alpha = .77$. Test-retest reliability for the ERQ measures in this study was .69 for both subscales. Assessment of validity by the authors of the ERQ is largely restricted to a student population.

The Depression Anxiety Stress Scale. (DASS-21; Lovibond and Lovibond 1995) is a brief 21-item self-report scale that distinguishes between the negative emotional states of depression, anxiety and stress. Participants rate each item on a 0 (did not apply to me at all) to 3 (applied to me very much or all of the time) scale for how much each statement applied to them over the past week. Higher scores indicate more depression, anxiety, or stress. It is a well-validated scale, on a population of 15–91 year olds (Lovibond and Lovibond, 1995) and has good internal reliability for the depression, anxiety and stress scales (alpha .91, .84 and .90, respectively; Crawford and Henry, 2003). These values are similar to those obtained from clinical populations (Antony, Beiling, Cox, Enns and Swinson, 1998; Brown, Chorpita, Korotitsch and Barlow, 1997) and to those obtained in this study for depression (.90), anxiety (.85) and stress (.87).

Procedure

Participants completed the questionnaires online or were sent or given paper versions of the questionnaires together with a reply-paid envelope for return. The questionnaire pack included an information sheet and a de-briefing statement. The questionnaires were completed in the order presented above and took approximately 30 minutes to complete. We also conducted a sub study to examine the equivalence of online and paper and pencil versions of the measures. Twenty participants were recruited; 13 females and 7 males, mean age 28.0±3.3, 24–38 years. Half the participants completed the pencil and paper measure first, while the other completed the online version first: 2 weeks later they were asked to complete the alternative version. Intraclass correlations for all subscales were significant (Reappraisal − .53, $p = .007$, Suppression − .38, $p = .046$, Depression − .51, $p = .009$, Anxiety − .60, $p = .002$, and Stress – $p = .028$. Further, there were no significant differences in total scores between the two formats (all paired test were $t < 0.80$, $p > .433$, except Depression, $t\,(19) = 1.48$, $p = .156$)[1]. Following guidelines by Salgado and Moscoso (2003) this evidence suggests that good, but not perfect, equivalence was found between the measures when completed online versus on paper. One possible explanation for the good but not perfect equivalence was that the measures were completed 2 weeks apart. The DASS, for example, asks participants to respond based on the past week and therefore some small differences in scores might be expected as participants had different experiences to draw upon for each of their responses. Nonetheless, there were no significant differences between test scores across formats, suggesting it is reasonable to combine data from the two.

[1] Online vs. Paper *M*±*SD* scores: Reappraisal – 32.1±4.2 vs. 32.2±5.0; Suppression – 11.4±3. vs. 10.9±4.1; Depression – 4.8±4.1 vs.6.7±6.1; Anxiety – 4.6±4.1 vs. 4.6±4.8; Stress – 13.1±9.2 vs. 14.7±7.3. In all between-group analyses reported below, test version (online vs. pencil and paper) was added as a factor. There were no significant effects (main or interaction) of test version, further confirming that the data could be combined.

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Table 2. Descriptive statistics of younger, middle-aged and older adults' use of the emotion regulation strategies; reappraisal and suppression and psychological distress

	Younger adults			Middle-aged adults			Older adults			
	n	*M*	*SD*	*n*	*M*	*SD*	*n*	*M*	*SD*	*Sig.*
Reappraisal	314	28.49	6.12	168	29.70	6.34	83	28.34	6.88	.103
Suppression	314	12.00	4.86	168	12.00	4.37	83	14.89	5.58	< .001
Depression	309	10.02	10.11	161	7.85	8.25	75	6.74	7.20	.005
Anxiety	309	7.67	8.72	161	5.20	6.43	75	4.04	5.37	< .001
Stress	309	15.05	10.16	161	12.66	8.25	75	8.98	7.80	< .001

Notes: 32 participants did not complete the DASS and 12 did not complete the ERQ; ‡ $p < .001$; † $p <$ .017, Bonferroni corrected value

Results

All analyses were conducted with gender as an independent factor. However, there were no significant effects of gender; therefore gender effects are not reported below to aid clarity of the findings.

The relationship between age and emotion regulation strategies

Two separate ANOVAs were conducted on the reappraisal and suppression subscales of the ERQ. To control for family-wise error, we used a Bonferroni corrected p value of .017 (.05/3) and because our group sizes were extremely unequal, we followed Field's (2005) recommendation to use Hochberg's GT2 for post hoc comparisons. There was a significant difference between the three age groups on suppression, $F(2, 562) = 11.66$, $p < .001$, partial $\eta^2 = .040$. Older adults reported significantly greater use of suppression than younger ($p < .001$) and middle-aged adults ($p <.001$), who did not differ from each other ($p = 1.0$). However, there was no significant difference between the three age groups on reappraisal $F(2, 562) = 2.29$, $p = .103$, partial $\eta^2 = .008$. This suggests that older adults report more use of suppression than younger and middle-aged adults but that no significant differences exist in use of reappraisal.

The relationship between age, emotion regulation and psychological distress

In order to investigate the relationship between age and psychological distress, a MANOVA was run using age group as the independent variable and the three DASS scales (anxiety, stress and depression) as dependent variables. This method was selected instead of a regression analysis due to the data being heavily skewed towards the younger age group and because the sample as a whole had a roughly bimodal distribution due to the small number of adults around the age of 40. The means for DASS scores by age group are shown in Table 2. The overall effect of age was significant, $F(6,1082) = 5.52$, $p < .001$, partial $\eta^2 = .030$. Univariate ANOVAS, using a Bonferroni corrected p value of .017, showed that the three age groups differed significantly on anxiety $F(2,542) = 9.63$, $p < .001$, partial $\eta^2 = .034$, on stress $F(2,542) = 13.78$, $p < .001$, partial $\eta^2 = .048$ and depression $F(2,542) = 5.36$,

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Table 3. Correlations between Suppression and measures of psychological distress (Spearman's Rho)

	Younger adults $N = 309$		Middle-aged adults $N = 159$		Older adults $N - 75$	
	Suppression					
	r	*p*	*r*	*p*	*r*	*p*
Depression	.36	< .001	.24	.003	0	1.0
Anxiety	.30	< .001	.08	.311	−.07	.553
Stress	.22	< .001	.19	.015	−.02	.847

Note: 32 participants did not complete the DASS and 12 did not complete the ERQ

$p = .005$, partial $\eta^2 = .019$. Pairwise comparisons using Hochberg's GT2 test and a Bonferroni corrected p value of .017 showed that younger adults reported more anxiety than either older adults ($p < .001$), or middle-aged adults ($p = .003$), who did not differ from each other ($p = .631$). Older adults reported lower levels of stress than younger ($p < .001$), but neither group differed from middle-aged adults (both, $p = .025$). There were no age differences between the three age groups in depression ($p = .018 - .771$).

As we had found a significant difference between the three age groups in their use of emotional suppression, we investigated the relationship between suppression and psychological distress in each of the age groups separately. Table 3 shows the Spearman's rho correlations between emotional suppression and psychological distress. To control for multiple comparisons, we used a Bonferroni corrected p value of .017. There was a significant positive correlation between suppression and all three indices of psychological distress for both the younger adults, and for depression and stress for and the middle-aged adults. By comparison, there were no significant correlations between suppression and either anxiety, stress, or depression in the older adult group.

Discussion

The aim of this study was to examine whether emotion regulation differed across the lifespan and to explore the impact of emotion regulation styles on psychological distress. We predicted that older adults would use reappraisal more than younger adults to regulate emotion, whereas suppression would be used more by younger adults, particularly males. Our findings were rather different. Older adults reported using suppression more than middle-aged and younger adults, but did not differ in their reported use of reappraisal to regulate emotion, which conflicts with earlier published findings (Cheavens et al., 2008; Gross and John, 2003). In line with previous research (Folkman et al., 1987; Henderson et al., 1998; Lawton, Kleban and Dean, 1993), we found that levels of anxiety and stress were lower in the older adult group than in the younger or middle-aged group. Surprisingly, the use of suppression was not associated with psychological distress in the older adult age group. This was not a result of small sample size, given the very small effects reported (all Rho values were < .07) suggesting

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that this lack of an association reflects the genuine absence of a relationship in adults 65 years and over. In terms of gender differences, males were under-represented in our sample, so we cannot come to any definitive conclusions; however, we did not find any evidence of gender influencing the reported use of emotion regulation strategies, or report of emotional distress. The discussion explores these findings and considers them in the light of conflicting results in the existing literature.

As predicted, suppression was positively associated with psychological distress, but only in younger and middle-aged adults, not in older adults. Although there is a substantial body of literature that suggests suppression is associated with psychological distress (John and Gross, 2004), so far this literature has failed to take age differences into account. When age differences are considered, such as in the current study and that of Magai et al. (2006), no relationship between suppression and psychological distress has been found in older adults. However, the current study is consistent with previous literature demonstrating that suppression is linked to distress in younger adults, and adds to this by showing the distress is also higher in middle-aged adults using more suppression in terms of depression and stress. These findings strongly suggest that the relationship between suppression and psychological distress is complex, and that there may be a decoupling of suppression and psychological distress with age. One possible explanation for this decoupling is that suppression has some functional benefits for older adults because of the types of difficulties faced at a later stage of life.

Older adults experience more loss events such as declining health, terminal illness, loss of a work role, loss of friends and loved ones (Chiriboga and Cutler, 1980; Dekker and Webb, 1974; Lazarus and DeLongis, 1983; Lowenthal, Thurnher and Chiriboga, 1975; Uhlenhuth, Lipman, Balter and Stern, 1974), whereas younger and middle-aged adults report more day-to-day stressors, such as those involved in work environments (Holahan, Holahan and Belk, 1984). The types of stressors experienced more frequently by older adults are not controllable, whereas those experienced by younger adults tend to be potentially changeable and are amenable to individual control (Mirowsky and Ross, 1992, 1999; Schieman, Van Gundy and Taylor, 2001). These differences in the types of stressful events faced by these groups might mean that different types of emotion regulation strategies are required at different phases of the life span.

Suppression, in younger adults, is generally associated with poorer psychological health outcomes and this was supported in the current sample. However, there is a small body of literature that shows that suppression can be useful when stressors are not controllable (Lazarus, 1990). For example, the use of emotion regulation strategies such as suppression was associated with fewer psychological symptoms in victims of a nuclear disaster (Collins, Baum and Singer, 1983). The authors suggest that where there is little scope to change or control the damaging effects of the stressor, then strategies such as distancing or avoiding are associated with better adaption when compared to strategies such as problem solving. Similar conclusions were drawn in a later study with hostages (Strentz and Auerbach, 1988).

The idea that the use of certain emotion regulation strategies is adaptable to certain situations is described as the "matching hypothesis" (Christensen, Benotsch, Wiebe and Lawton 1995; Lazaraus, 1993; Lazarus and Folkman, 1984; McCrae, 1984). That is, stressors that are potentially controllable or manageable are more likely to be addressed using problem-focused strategies, whereas stressors that are deemed to be less controllable are more likely to prompt emotion-focused coping (Christensen, Smith, Turner, Holman and Gregory, 1990;

Taylor and Aspinwall, 1990; Vitaliano, DeWolfe, Maiuro, Russo and Katon, 1990; Aldwin and Brustrom, 1997; Maes, Leventhal and de Ridder, 1996).

These findings might help to explain why suppression could be useful at a life stage when there is limited scope for changing or controlling the types of stressors that are frequently experienced. The focus at this stage of life might be on remaining as emotionally satisfied as possible in the present. Socio-emotional selectivity theory describes this as a shift in emotion-regulation goals (Carstensen et al., 1999). As discussed previously, this theory suggests that, as people age, they increasingly experience an awareness of time being limited and therefore shift their motivational goals towards a focus on emotional well-being. They replace preparing for the future by striving to feel emotionally satisfied in the present. Research investigating age differences in styles of coping provides support for this theory. Younger adults use proportionally more active, interpersonal problem-focused coping strategies (including confrontative coping and problem solving) than older adults (Folkman et al., 1987), whereas older adults use more emotion-focused forms of coping (Folkman et al., 1987). Suppression could be conceptualized as an emotion-focused style of coping that is useful as a means of regulating the expression and experience of emotions in older adults.

Limitations and future directions

This study recruited a large sample with a wide range of ages from 18 to 91 years, allowing us to capture an often omitted older age group. However, it also used a cross-sectional design, which makes the study vulnerable to cohort effects. This may include the fact that this older age group would have grown up around the end of the Second World War, a time of loss and "doing without". At this time the concept of the British "stiff upper lip" would, arguably, have encouraged the use of strategies such as suppression. It may be, therefore, that the higher levels of suppression in this age group are the result of this cohort's early experiences rather than the result of a developmental shift in this coping strategy. Whilst some argue that cohort factors have limited impact on cross sectional studies (Blanchflower and Oswald, 2008), this does represent a potential limitation of the current study and longitudinal studies could shed more light on how emotion regulation strategies develop and change.

An additional issue was the relatively modest intra-class correlations between the online and paper forms of the measures. As noted, however, there were no significant differences between the means of these forms, nor did the version used exert any interaction effects with age-group or gender across any of the ANOVA analyses reported. Accordingly, our view is that this is likely to have had little impact on the findings reported here.

This study utilized a non-clinical sample and is, therefore, limited in its conclusions. Future research would benefit from including clinical samples and should also assess characteristics of a stressor in order to ascertain the impact of type of stressor on age-related emotion regulation. A further limitation of the sample was that, across all age groups, there was a bias towards individuals with higher levels of education who were, necessarily, high-functioning. Likewise, the sample was biased towards women and young people generally. Accordingly, sampling from non-university students or from middle aged adults who are unemployed or older adults in care facilities might produce different results. In particular, the gender imbalance noted in the Method section suggests any conclusions drawn are more representative of women than men.

In terms of future research, studies could focus on further exploration of the relationship between age and use of suppression and subsequent negative affect. The validation of the ERQ measure with an older adult population would be of benefit to such research. This study has identified the occurrence of a possible decoupling between the use of emotional suppression and psychological distress with age and if this is a robust finding, we need directly to explore how and why suppression is a beneficial strategy for older adults.

Conclusion

This study provides new insight into the relationships between self-reported emotion regulation and emotional awareness across the adult lifespan. The study confirms previous data that demonstrate a possible decline in psychological distress with increased age, and provides further evidence that we should not assume that psychological distress is a necessary consequence of old age. In addition, research on emotion regulation in older adults requires expansion. Emotion dysregulation is implicated in more than half of DSM-IV Axis 1 disorders and in all Axis 2 disorders (American Psychiatric Association, 1995; Gross and Levenson, 1997; Thoits, 1985). Therapies that address emotion regulation have become increasingly popular in the past decade (e.g. Linehan, 1993). Reaching a better understanding of the role of emotion regulation in older adults, through studies such as this, further adds to the literature informing such interventions. Finally, the current study provides evidence for the greater use of suppression in older adults, a research area that has scant evidence. It tentatively suggests that in older adults suppression is not associated with the negative affect that is reported in studies with younger adults. Instead, a time limited perspective, described in socio-emotional selectivity theory, is postulated to increase older adults' focus on emotion regulation goals. Suppression is possibly a useful form of emotion regulation for the types of stressors experienced more often in later life stages, and arguably therefore is not associated with the negative outcomes observed in younger adults. This could account for the possible decoupling between suppression and psychological distress observed in this study.

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