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Abstract: A new questionnaire, the Behavioral Emotion Regulation Questionnaire (BERQ) was developed. This questionnaire consists of 5 scales and assesses one's behavioral style or strategies of responding to stressful events to regulate emotions. It is the first questionnaire that measures behavioral coping only and complements the Cognitive Emotion Regulation Questionnaire (CERQ) which measures cognitive coping. In a sample of 457 adults from the general population the psychometric properties of the BERQ (measuring dispositional coping) and its relationship with well-being and the CERQ were examined. Principal component analyses supported the allocation of items to the subscales, with alphas of all scales being high. All BERQ scales correlated significantly with symptoms of depression and anxiety. Higher use of Seeking Distraction, Actively Approaching and Seeking Social Support was related to fewer depression and anxiety symptoms, suggesting these are more adaptive strategies. Higher use of Withdrawal and Ignoring was related to more depression and anxiety symptoms, suggesting these are less adaptive strategies. The BERQ and CERQ scales were mainly small to moderately correlated with each other. The results suggest that it is important to pay attention to behavioral coping in the development of intervention programs for mental health problems.

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The Behavioral Emotion Regulation Questionnaire: Development, psychometric properties and relationships with emotional problems and the Cognitive Emotion Regulation Questionnaire

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Highlights (for review)

The Behavioral Emotion Regulation Questionnaire: Development, psychometric properties and relationships with emotional problems and the Cognitive Emotion Regulation Questionnaire

Highlights

- Development of a questionnaire to measure behavioral emotion regulation or coping.
- Analyses supported the allocation of items to the 5 subscales.
- All scales correlated significantly with symptoms of depression and anxiety.
- Seeking Distraction, Actively Approaching and Seeking Social Support seem helpful.
- Withdrawal and Ignoring seem unhelpful.

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Abstract

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questionnaire consists of 5 scales and assesses one's behavioral style or strategies of responding to

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Introduction

Background

Exposure to negative life events has generally been found to be associated with psychopathology across the life span (Kraaij & De Wilde, 2001). Identifying processes that protect or make people more vulnerable to the effects of stressful life events is important for the development of intervention programs for people with emotional problems. The ability to cope with stressful events and to regulate emotions has been found to play an important role in the relationship between stressors and psychopathology (Compas, Connor-Smith & Jaser, 2004; Sloan et al., 2017).

There are many definitions regarding coping and emotion regulation and these terms are used somewhat interchangeably. In both concepts regulatory processes play a central role. In the case of coping the regulatory processes occur in response to a stressful event, whereas in emotion regulation the regulatory processes occur in response to the presence of an emotion where the emotion can arise from a stressor or not (Compas et al, 2017). In the present study we will connect to the definitions of coping by Lazarus and Folkman "Constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (1984; p.14) and by Compas and colleagues (2001) "Conscious and volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (2001, p.89). These definitions have in common that they highlight the role of coping as a process of responding to stress. In addition, they both emphasize coping as a controlled, effortful process, meaning they require conscious, purposeful, and intentional thoughts and behaviors (Compas et al., 2017). The definitions both mention cognitions and behavior to play a role in coping with stressful events to regulate emotions. However, existing coping measures often include strategies that can both be carried out through cognitive and behavioral channels (Garnefski, Kraaij & Spinhoven, 2001). Garnefski and colleagues (2001) argued that cognitive and behavioral coping should not be ranged in one and the same

dimension, because thinking and acting are different processes used at different points in time. Therefore, as a first step, they developed a questionnaire (the Cognitive Emotion Regulation Questionnaire [CERQ]) to measure cognitive coping strategies, while excluding the dimension of behavioral strategies. The CERQ appeared to have good psychometric properties (Garnefski et al, 2001; Garnefski, Kraaij & Spinhoven, 2002).

Cognitive coping strategies indeed have been shown to play an important role in the relationship between stressors and well-being. Across samples and stressful events significant relationships were found between Rumination, Catastrophizing, Self-blame (positive) and Positive Reappraisal and Putting into Perspective (negative) on the one hand and depressive symptoms on the other hand (Garnefski & Kraaij, 2006; Garnefski, Boon & Kraaij, 2003; Schroevers, Kraaij & Garnefski, 2007). The CERQ has been translated and validated in numerous languages. Cross-cultural comparison between European countries (Potthoff et al., 2016) and Arabic-speaking countries (Megreya et al., 2016) showed that there were strong relationships between cognitive coping strategies and psychopathology in all countries.

The development of the Behavioral Emotion Regulation Questionnaire (BERQ)

As mentioned before, both cognitions and behavior play an important role in coping with stressful events to regulate emotions. The first step of developing the CERQ resulted in an extensive body of literature showing the importance of cognitive coping strategies in this regard. As a second step, it would be interesting to know more about the of role of the behavioral strategies. This information could help in developing integrated cognitive and behavioral intervention programs. In addition, it would be interesting to study the relationships between cognitive and behavioral coping to clarify their unique or overlapping role in the adaptation to stressful events. Earlier studies already showed that behavioral coping strategies play an important role in the relation between stressful events and well-being. In a meta-analysis (Kato, 2015) it was found that active coping and seeking social support

were both significantly related to a higher level of well-being. In addition, behavioral disengagement was significantly related to lower levels of well-being. Furthermore, another review study reported that distraction has been found to be an effective strategy in dealing with negative life events (Joormann & Stanton, 2016). However, these studies did not include coping measures that were purely behavioral. Self-Regulation Questionnaires (coming from research on Self-Determination Theory) focus on planning, guiding and monitoring one's behavior (Neal & Carey, 2005). While these measures are valuable when studying behavior change in order to achieve one's goals, they are not focusing on a controlled process of responding to stress in a behavioral way. Such an instrument does not exist yet. Therefore, we developed a new instrument, The Behavioral Emotion Regulation Questionnaire (BERQ).

To guide the scale's content, we used the same theory-based or "rational" approach as used in the development of the CERQ (Garnefski et al., 2001). In formulating the dimensions of behavioral coping we made use of existing coping measures. The strategy was to consider coping strategies from these existing measures, either by using and reformulating the behavioral dimension (as far as they were in the measure), by "transforming" non-behavioral coping strategies into behavioral dimensions or by adding new strategies on "rational" grounds. For these purposes we especially consulted and/or made use of the following coping measures: the Coping Inventory for Stressful Situations (CISS: Endler & Parker, 1990, 1994; Parker & Endler, 1992), the COPE (Carver, Scheier & Weintraub, 1989), and the Ways of Coping Questionnaire (WCQ: Folkman & Lazarus, 1988). During the development various pilot studies were performed, starting with an initial pool of 32 items. During this process, items with weak loadings were revised or discarded. A total set of 20 items remained. Depending on the introduction of the questionnaire, the BERQ can be used to measure one's behavioral style of responding to threatening or stressful life events (dispositional coping), or one's behavioral strategies that are used in response to a particular stressful event or situation (situational coping). The BERQ is a self-report questionnaire that can be administered to people aged 12 years and older (similar to the CERQ).

The questionnaire we developed includes five conceptually distinct scales. Each scale consists of four items (see Table 1 for the items) and refers to what you do following the experience of stressful events. The scales are:

Seeking distraction, which refers to distracting yourself from your emotions by doing something else, in order to cope with the stressful event.

Withdrawal, which refers to drawing yourself back from situations and social contacts to deal with the stressful event.

Actively approaching, which refers to active behavior of yourself to deal with the stressful event.

Seeking social support, which refers to actively sharing emotions and asking for support and advice in order to cope with the stressful event.

Ignoring, which refers to ignoring and behaving like nothing has happened in order to deal with the stressful event.

Based on the literature (Joormann & Stanton, 2016; Kato, 2015), it was expected that Seeking Distraction, Actively Approaching and Seeking Social Support were positive ways of handling stressful events and that Withdrawal and Ignoring were negative ways to handle stressful events.

Aim of the present study is to report on the psychometric properties of the BERQ, such as the factor structure, the Cronbach's alphas, interscale correlations and test-retest correlations. Means and standard deviations of the scales will be presented. In addition we will report on the correlations of the BERQ scales with measures of depression, anxiety and the CERQ scales. We will do this in a general population sample consisting of adults.

Method

Sample

A total of 457 adults participated in the present study. Their mean age was 45.6 years (range 18-67 years; SD=13.00). The majority was female (81.2%), 50.7% was married or living together and 83.2% was higher educated (undergraduate or graduate degree). The majority (76.4%) had a paid job, 10.5% did volunteer work and 13.1% was following an education.

Of the initial sample, 120 (26%) participated in the 2 years follow-up. At follow-up the mean age was 52.9 years (range 20-68; SD=11.45), 79.2% was female and higher educated (88%).

Procedure

Participants were approached through a General Practitioner's (GP) Practice in the Netherlands. All patients of the GP practice of whom an email address was available received a mail with a link to an online self-report questionnaire. In total 1850 persons were approached, of whom 457 persons completed the questionnaires (24.7%). Inclusion criteria were being 18 years and older and understanding Dutch. Participants filled in an informed consent at the start of the questionnaire. Confidentiality and anonymity towards the GP was guaranteed. Participants who gave consent to be contacted again in the future, were approached for a follow-up 2 years later. The ethical committee of the University approved the study.

Instruments

The questionnaire covered a number of areas. For the present study measures of behavioral coping, depression and anxiety, and cognitive coping were used. Both the BERQ and CERQ were used to measure dispositional coping.

Behavioral coping. The BERQ was used to assess what people tend to do after experiencing stressful events in order to regulate their emotions. In line with the instruction of the CERQ, the introduction of the BERQ was as follows: "Everyone gets confronted with negative or unpleasant events now and then and everyone responds to them in his or her own way. By the following questions you are asked to indicate what you generally do, when you experience negative or unpleasant events". The BERQ consists of 5 scales with 4 items each and the answer categories range from 1 ([almost] never) to 5 ([almost] always). For each subscale score the four items are added (range 4 to 20).

Depression and anxiety. Symptoms of depression and anxiety were measured by the Hospital Anxiety and Depression Scale (HADS; Spinhoven et al., 1997; Zigmond & Snaith, 1983). The questionnaire consists of 14 items with a 4-point scale. High scores on the anxiety and depression subscales (made up of 7 items each) reflect increased levels of anxiety and depression. The HADS is a reliable self-report instrument with sufficient internal validity (Spinhoven et al., 1997). In the present study alpha-reliabilities were found of .84 for anxiety and .86 for depression.

Cognitive coping. The CERQ was used to assess wat people tend to think after experiencing stressful events (Garnefski et al., 2001; Garnefski, Kraaij & Spinhoven, 2002). The CERQ consists of 9 scales with 4 items each and the answer categories range from 1 ([almost] never) to 5 ([almost] always). For each subscale score the 4 items are added (range 4 to 20), indicating the extent to which a certain strategy is used. The CERQ subscales are: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting into perspective, catastrophizing, and other-blame. The psychometric properties of the CERQ have been proven to be good (Garnefski et

al., 2001). In the present study the alpha-reliabilities of the subscales also appeared to be good, with alphas ranging from .63 to .86.

Data analysis

To study the factor structure of the BERQ, a Principal Component Analyses (PCA) with oblimin rotation to allow for correlations among factors was performed. To study the reliability of the BERQ scales, the Cronbach's alphas were calculated. Means and standard deviations of the BERQ scales were calculated. To study the interscale correlations, the test-retest correlations and the relationships of the BERQ scales with depression, anxiety and the CERQ, Pearson correlations were calculated. In addition, Partial correlations were calculated between the BERQ subscales and measures of depression and anxiety, to control for possible inter-correlations of the BERQ scales. To interpret the strengths of the correlations Cohen's (1988) conventions were used.

Results

Principal Component Analyses (PCA)

A PCA, with oblimin rotation, was performed (Table 1). Five factors were extracted (based on eigenvalue >1 and Scree criterion). Together they explained 78.6% of the variance. Communalities of the variables ranged between .64 and .87. The factors were fully in accordance with the a priori assignment of items to the scales. Each item held its highest factor loading on the scale to which it theoretically belonged. All loadings on the a priori factors exceeded |0.79|. Several items also loaded on other factors, but never higher than |0.56|. The following items had loadings > |.4| on other factors: All items of the scale Actively Approaching loaded on the Seeking Social Support scale (respectively with .42, .47, .51, and .47); Items 2-4 of the scale Seeking Social Support loaded on the Actively Approaching scale (respectively with ~.56, ~.48, and ~.50); The last item of the Withdrawal scale loaded on the scale Ignoring (.41) and the last item of the scale Ignoring loaded on the scale Withdrawal (.41). The correlation coefficients between the factors Actively Approaching and Seeking Social Support and between the factors Withdrawal and Ignoring also showed that they were interrelated to some degree (correlation coefficients of respectively ~.49 and .36).

Correlations between subscales

Pearson correlations between the subscales of the BERQ were calculated (Table 2). They ranged from -.13 (Seeking Distraction and Withdrawal) to .57 (Actively Approaching and Seeking Social Support).

This indicates small to moderate correlations between the subscales, with the exception of one large correlation between Actively Approaching and Seeking Social Support.

Reliabilities of the scales

Cronbach's alpha reliability coefficients were computed (see Table 3). The alpha reliabilities of all BERQ subscales were high, ranging from .86 to .93.

Test-retest reliability coefficients were computed by Pearson correlations between subscale scores of the first and second measurement (Table 3). Taking into account the rather long follow-up period, the test-retest reliabilities of the scales were found to be very good, with values ranging from .47 to .75.

Means and standard deviations of the scales

The means and standard deviations of the BERQ scales can be found in Table 3. The theoretically more adaptive scales Seeking Distraction, Actively Approaching and Seeking Social Support were all reported to have been used more often than the theoretically less adaptive scales Withdrawal and Ignoring.

Correlations between BERQ subscales and symptoms of depression and anxiety

The Pearson and Partial correlations between de BERQ scales and symptoms of depression and anxiety were calculated (Table 4). All BERQ scales had a significant Pearson correlation with Depression. The theoretically more adaptive scales Seeking Distraction, Actively Approaching and Seeking Social Support had small to moderate negative relationships with depressive symptoms and the theoretically less adaptive scales Withdrawal and Ignoring had moderate to large positive relationships with depressive symptoms. When controlling for the other scales (Partial correlations), Actively Approaching and Seeking Social Support no longer had a significant relationship with Depression.

The theoretically less adaptive scales Withdrawal and Ignoring both had moderate to large positive significant Pearson and Partial correlations with Anxiety. The theoretically more adaptive scales Actively Approaching and Seeking Social Support had small negative significant Pearson correlations with symptoms of anxiety. When controlling for the other scales, they no longer had a significant relationship with Anxiety. Seeking Distraction did not correlate with Anxiety.

Correlations between BERQ and CERQ subscales

Pearson correlations between the BERQ subscales and CERQ subscales were calculated (Table 5). There were a number of small to moderate significant correlations. There were 3 large significant positive correlations: Seeking Distraction and Positive Refocusing were strongly correlated (r=.53), and Actively Approaching correlated strongly with Refocus on Planning (r=.67) and Positive Reappraisal (r=.51).

Discussion

In the present study a new questionnaire (the BERQ) was developed. This questionnaire consists of 5 scales and assesses one's behavioral style or strategies of responding to stressful events in order to regulate emotions. It is the first questionnaire that measures behavioral coping and complements the CERQ which focuses on cognitive coping only. In a sample of 457 adults from the general population the psychometric properties of the BERQ and its relationship with the CERQ and well-being were examined.

The results of the PCA provided support to the allocation of the items to the 5 subscales. The alpha reliabilities of all scales were high. The correlations between the subscales were small to moderate, except for Actively Approaching and Seeking Social Support. However, the shared variance

of these two scales (32%) is not as high as to suggest they are the same constructs. In addition, the content of these 2 scales is rather different, as confirmed by the PCA. Therefore, it was decided that the BERQ should consist of these 5 subscales. The test-retest reliabilities suggested that the behavioral coping strategies are relatively stable over time, although they are not as stable as personality traits.

The theoretically more adaptive scales (Seeking Distraction, Actively Approaching and Seeking Social Support) were all reported to have been used more often than the theoretically less adaptive scales (Withdrawal and Ignoring). This could be a function of the sample coming from a GP practice including all registered patients and does not focus on people with psychological problems. This finding corresponds to findings with the CERQ in a sample of adults from the general population (Garnefski, Kraaij & Spinhoven, 2002), where the two scales that were used most often were also more adaptive scales (Refocus on Planning and Positive Reappraisal), and the two scales that were used least often were less adaptive scales (Catastrophizing and Other-blame). The next step should be comparing the extent to which behavioral coping strategies are used between a clinical and non-clinical sample (see also Garnefski, Van Den Kommer et al., 2002). This could provide important clues for the content of treatment programs.

All BERQ scales correlated significantly with Depression, and all BERQ scales, except for Seeking Distraction, correlated significantly with Anxiety. Seeking Distraction, Actively Approaching and Seeking Social Support correlated negatively with depression and/or anxiety symptoms. Withdrawal and Ignoring correlated positively with depression and anxiety symptoms. These findings are in line with relationships reported in other (review) studies (Joormann & Stanton, 2016; Kato, 2015) and confirm our expectation that these strategies were adaptive and non-adaptive respectively. When looking at the strengths of the correlations, the maladaptive strategies were more strongly related to psychopathology than the adaptive strategies. This has also been found in a large meta-analytic review study, where the authors state that this may indicate that the presence of

maladaptive strategies is more harmful than the absence of adaptive strategies (Aldao, Nolen-Hoeksema, & Schweizer, 2010). Based on these findings we can argue that it might be important to pay attention to Withdrawal and Ignoring in the development of intervention programs.

Finally, the BERQ and CERQ scales were mainly small to moderately correlated with each other. The large correlation between Seeking Distraction and Positive Refocusing seems to be justified since they both relate to distracting yourself, namely by doing this in a behavioral way (e.g. "I do other things to distract myself") or by doing this mentally (e.g. "I think of something nice instead of what has happened"). However, their shared variance (28%) suggest that they are both unique concepts. The highest correlation was found for Actively Approaching and Refocus on Planning. This is what you would expect since they both concern action. Cognition (e.g. "I think about a plan of what I can do best") and behavior (e.g. "I take action to deal with it") seem to go hand in hand, but at the same time are not similar processes (shared variance 45%). Altogether, these findings suggest that while behavioral and cognitive coping are related to each other, they also have a large amount of unique variance. We know a lot already about the role that cognitive strategies play in handling stressful and emotional events. With the development of the BERQ we can perform new studies that can add to this knowledge.

Further validation studies should be performed. For example, studies could focus on associations of the BERQ with actual coping behaviors and other coping measures. Furthermore, the BERQ was used as a dispositional measure in the present study and therefore the findings cannot be generalized to situational coping. Future studies should be performed using the BERQ as a measure for situational coping to study its properties and relationships. In addition, studies concerning the BERQ should be performed with different groups of people (e.g. adolescents to elderly) from different cultural backgrounds. With this knowledge tailored interventions could be developed for specific groups. Furthermore, it would be interesting to study both cognitive and behavioral coping and its relationship with well-being. This could for example provide valuable information for guiding

the specific content of Cognitive Behavioral Therapy. Finally, future research should examine whether the items from the BERQ are free of contamination by psychopathological content to avoid spurious correlations. This could be done by asking clinical experts whether the items of the BERQ might indicate psychological disorders (see Stanton, Danoff-Burg, Cameron & Ellis, 1994).

The present study had several limitations. First, the design was cross sectional, making it impossible to draw conclusions about the causality of the relationships. Second, all variables were measured by self-report. This may have caused bias. Third, the order of the measures was not counterbalanced across participants. The responses may have been affected by the order of the questionnaires (HADS, CERQ, BERQ respectively). Finally, the sample was comprised of predominantly higher educated employed women and only a small percentage participated at follow-up. Therefore one should be careful in generalizing the findings.

A strong point of the present study has been the use of a large sample in the development of a questionnaire. The same approach was used as with the development of the cognitive counterpart of the questionnaire. With the development of the BERQ, behavioral coping strategies can be studied. The BERQ and CERQ together cover both cognitive and behavioral ways of coping and make it possible to study the interplay of these two dimensions of emotion regulation. Finally, if the present findings can be confirmed, this knowledge could be used for the focus and content of psychological intervention programs for mental health problems.

Note

The BERQ can be used for free for research purposes. Please mail the authors to request reprints of the questionnaire.

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Table 1

Factor structure of BERQ: items listed by a priori assignment to scales

Scale name	Items	Factor loadings
Seeking Distraction	I engage in other, unrelated activities	.79
	I set my worries aside by doing something else	.86
	I do other things to distract myself	.89
	I engage in an activity which makes me feel good	.83
Withdrawal	I avoid other people	.87
	l withdraw	.93
	l isolate myself	.94
	I close myself off to others	.92
Actively Approaching	I try to do something about it	85
	I get to work on it	91
	I take action to deal with it	90
	I do whatever is required to deal with it	87
Seeking Social Support	I look for someone to comfort me	.88
	I ask someone for advice	.85
	I share my feelings with someone	.90
	I look for someone who can support me	.92
Ignoring	I move on and pretend that nothing happened	.84
	I repress it and pretend it never happened	.90
	I behave as if nothing is going on	.87
	I block it out	.86

Table 2
Pearson intercorrelations between BERQ scales

Seeking Distraction	Withdrawal	Actively Approaching	Seeking Social Support	
-				
13**				
.38***	16***	-		
.22***	30***	.57***	V.=	
.18***	.38***	20***	35***	
	- 13** .38*** .22***	13** - .38***16*** .22***30***		

^{**}p<.01; ***p<.001

Table 3

Scale properties of the BERQ scales: Cronbach alpha reliabilities; test-retest reliability, means and standard deviations

BERQ subscales	Alpha (n=457)	r T1-T2 (n=120)	M	SD
Seeking Distraction	.86	.47***	12.05	3.29
Withdrawal	.93	.70***	8.56	3.47
Actively Approaching	.91	.62***	12.69	3.67
Seeking Social Support	.91	.75***	11.69	3.86
Ignoring	.89	.56***	8.36	3.59

^{***}p<.001

Table 4

Pearson and partial correlations between the BERQ scales and depression and anxiety symptoms

BERQ scales	Depression		Anxiety		
	Pearson r	Partial r	Pearson r	Partial r	
Seeking Distraction	18***	18***	08	09	
Withdrawal	.48***	.36***	.40***	.30***	
Actively Approaching	17***	00	12*	03	
Seeking Social Support	22***	.01	13**	.08	
Ignoring	.35***	.23***	.33***	.24***	

P<.05; **p<.01; ***p<.001

Table 5

Pearson correlations between the BERQ and CERQ scales

3	CERQ scales								
	Self- blame	Acceptance	Rumination	Positive Refocusing	Refocus on Planning	Positive Reappraisal	Putting into Perspective	Catastrophizing	Blaming Others
Seeking Distraction	02	.24***	03	.53***	.29***	.32***	.22***	07	.05
Withdrawal	.37***	.20***	.29***	21***	.11*	14**	.04	.23***	.21***
Actively Approaching	01	.25***	.25***	.28***	.67***	.51***	.21***	06	.08
Seeking Social Support	04	.12**	.23***	.13**	.37***	.27***	.10*	05	.06
lgnoring	.26***	.11*	01	01	02	16***	.06	.15**	.15**

P<.05; **p<.01; ***p<.001