

Published Online: April 22, 2023

### COGNITIVE DISSONANCE AND DEPRESSION: A QUALITATIVE EXPLORATION OF A CLOSE RELATIONSHIP

Mark Byrne, PhD, MSc, MA, BA ([byrnem29@tcd.ie](mailto:byrnem29@tcd.ie))

Agnes Higgins, PhD MSc, BNS, RPN, RGN ([ahiggins@tcd.ie](mailto:ahiggins@tcd.ie)).

Jan de Vries, PhD, MA, MSc, BSc ([jan.devries@tcd.ie](mailto:jan.devries@tcd.ie)) (corresponding author)

All affiliations: School of Nursing and Midwifery, Trinity College Dublin, Ireland.

#### ABSTRACT

*This qualitative study seeks to establish whether dissonance theory provides a meaningful avenue to add insights into the experience of depression. Semi-structured interviews were used (n=30) in which fifteen participants with a diagnosis of depression (DD) were compared with an equal size group with no experience of depression (ND). Responses to a depression scale (CESD-10) confirmed a significant difference in depression scores between groups. The interviews were analyzed using template analysis. Findings showed that in comparison with the non-depressed group, participants with depression reported more incisive dissonance inducing life events, more prolonged unresolved dissonance, less variation in cognitive efforts to reduce dissonance, and more rumination. It was concluded that dissonance theory provides an explanatory model for depression experiences and could inform further development of interventions. With little research reported to date, both quantitative and qualitative research are needed.*

#### INTRODUCTION

In a previous article in this journal, Stalder & Anderson (2014) asked whether depressed individuals are more susceptible to *cognitive dissonance*. They concluded from a comparison of college students, that higher scores on a *depression* scale were associated with a higher propensity to experience cognitive dissonance. To date, their *quantitative study* remains one of few that have empirically studied the role of cognitive dissonance in depression. The *qualitative study* presented here seeks to reignite discussion on the applicability of cognitive dissonance theory (CDT) to depression. The paper commences by outlining the potential theoretical relationship. After this, a condensed review of the literature precedes the presentation of the study and its findings.

Cognitive dissonance can be understood as the discomfort resulting from perceived *inconsistency* between cognitions (Festinger, 1957), between cognitions, beliefs and behaviors (Cooper, 2007), between behaviors and their goal orientation (Harmon-Jones & Mills., 2019), or conflict between self-related perceptions and behavior (Aronson, 1969). The more pronounced and important the inconsistency, the more intense the discomfort and therefore the stronger the drive to reduce it. Dissonance discomfort is associated with arousal of the sympathetic nervous system and higher activation in relevant parts of the brain (de Vries et al., 2015) to prepare for efforts to reduce the inconsistency. Interestingly dissonance reduction does not only take place through cognitive or behavioral adjustments that resolve

the inconsistency, but also through avoidance, distraction, denial, trivialization, and other approaches that reduce only the aversive tension (McGrath, 2017). Normally, the dissonance process is a useful regulatory mechanism that prevents cognitive and behavioral chaos and motivates resolving inner conflict and seeking peace of mind (de Vries & Timmins, 2016). The experience of *depression* may well be accompanied by or caused by the failure of dissonance regulation. Depression generally involves negative thinking, a sense of hopelessness, reduced energy and motivation. These symptoms may become severely maladaptive, and cause significant suffering (APA, 2022). Depression often has a combined somatic, affective, cognitive, and behavioral impact on the person (Beck et al., 1996; Hubley, 2021). Some authors highlight depression as ‘treatment-resistant’ (Voineskos et al., 2020). These challenges highlight the importance of us looking beyond current models of understanding and engage with novel ways of thinking about depression.

Corresponding aspects in the domains of depression and CDT are *the occurrence of inner conflict* and the *impact of failed efforts to reduce it*. *Inner conflict* has often been considered a core aspect of mental health problems, including depression. Psychoanalytical (the Id, Ego, Superego conflict) (Freud 1923) and humanistic psychology (incongruence between self-image and ideal self) (Rogers, 1951, 1959) have each incorporated this element in their theories of psychopathology. Outside of the clinical field, psychology has also seen a wide variety of models concerned with inner conflict (Heider, 1958; Piaget, 1951; Newcomb, 1953; Miller 1944; Osgood and Tannenbaum, 1955; Rosenberg, 1956). Among these models, CDT is arguably the most researched. Several revisions of Festinger’s original conception (see Cooper (2007) for a comprehensive overview) have added to its relevance. Typically, dissonance involving inner conflict around self-beliefs, (Aronson, 1969; Higgins, 1989), has been described as a source of low mood and can be prevalent during depression (Maddux & Meyer, 1995). *When dissonance reduction fails*, CDT suggests that nonetheless efforts to reduce the discomfort will continue. The connection with *rumination* was made by Martin and Tesser (1996), who suggested that discrepancies between a person’s goals and present reality leads to depressive rumination, which will only subside once the discrepancy has been resolved. Bravo et al. (2020) found that inner conflicts in soldiers were associated with rumination and mental health problems, including depression. It is therefore not surprising that the resolution of inner conflicts (Feixas et al. 2013, 2014) and finding ways of reducing rumination (Nolen-Hoeksema et al. 2008) have been proposed for the treatment of depression. Based on these parallels alone, there is scope to investigate the relationship between depression and cognitive dissonance in more detail.

### **Review of the empirical literature on dissonance and depression**

The origin of CDT in social psychology rather than clinical psychology has undoubtedly prevented it from integration in the mental health setting. Even so, its well-developed application in the conceptualization, prevention and treatment of eating disorders (Stice et al., 2000, 2021) has confirmed its relevance. In addition, efforts to use CDT to conceptualize anxiety (Suinn, 1965), obsessive compulsive disorders (Wright & Riskind, 2021), and substance misuse (Steiker et al., 2011) have shown a wider applicability to mental health. Disappointingly, the empirical literature on the application of CDT to depression is limited. A systematized literature search (for details see Supplemental Materials: LINK) using the search terms depression, dissonance and/or inner conflict, yielded only 11 studies. Four studies demonstrated that dissonance or inner conflict correlated with higher levels of depression (Stangier *et al.*, 2007; van Steenbergen *et al.*, 2010; Montessano *et al.*, 2014; Stalder & Anderson, 2014). Also, people with depression demonstrated less effective

dissonance reduction efforts (Miyagi *et al.*, 2017) and they reported dissonance after providing positive self-presentations, which can perpetuate depression (Rhodewalt & Agustsdottir, 1986). Not all studies showed a significant relationship (Rothenberg, 1983; Baumann *et al.*, 2014). Four studies addressed depression prevention and intervention. These showed that depression symptoms diminished as cognitive conflict was resolved (Rhode *et al.*, 2016; Montessano *et al.*, 2017; Paz *et al.*, 2019). Finally, Peterkin (2020) identified that high effort in engaging with a mental health program, which induced dissonance was associated with a higher success rate in reducing depressive symptoms. To summarize, even though the research effort is limited, the findings mostly support a relationship between CDT and depression.

### **Scope of the present study**

As the reviewed studies all used quantitative methodologies, it is unsurprising that limited insight was generated into the mechanisms whereby the two are linked. The qualitative focus of the present study aims to provide a more in-depth perspective on these processes. This was done through a comparison of how cognitive dissonance is experienced in individuals with and without a diagnosis of depression in the Republic of Ireland. The focus of data collection was on exploring participants' perspectives on inner conflict in their lives, how they coped, and how they attempted to reduce inner conflicts.

## **METHOD**

### **Participants**

The study involved two groups (purposive sampling) with fifteen participants each ( $n = 30$ ). The first group had a diagnosis of depression (DD) and was recruited through clinical gatekeepers within mental health services. The second group had no experience of depression (ND). They were recruited through university campus noticeboards and other locations. The ND group served as a healthy comparison group.

### **Procedure and Materials**

Semi-structured interviews were conducted in which the participant's experiences of dissonance or inner conflict were explored. In advance of the interview a short scenario describing inner conflict about not giving money to a beggar was presented as an illustration. After this, participants were prompted to relate to experiences of inner conflict in their lives. The use of the term inner conflict was necessary, because of unfamiliarity with CDT. The interview protocol is presented in Appendix A.

To ascertain whether the DD and ND groups differed significantly in terms of their depressive symptoms, the CESD-10 (Centre for Epidemiological Studies Depression Scale) was used. This 10-item tool (Andresen *et al.*, 1994) is a self-report measure of depression with robust reliability and validity (Miller *et al.*, 2008). Total values for the CESD-10 range from 0-30. A score of 10 or greater suggest significant presence of depressive symptoms (Björgvinsson *et al.*, 2013). Gender, age, and educational attainment were queried. Descriptive and inferential statistics were computed using SPSS 27 (IBM, 2020).

### **Qualitative Data Analysis**

The interviews were analyzed using NVivo (QSR, 2018). Template analysis (King, 2012) was used based on *a priori* themes within CDT. Subsequently, an iterative process resulted in an advanced analysis template (see Appendix B), which was applied to the total data set. To facilitate the comparison between the two groups, the number of expressions within each theme and sub-theme per group were added up and compared.

**Ethical Aspects**

The study was performed in accordance with the principles of the Declaration of Helsinki (World Medical Association, 2013). Ethical approval was granted by the relevant committee in the researchers’ university and mental health services involved. Participants’ mental health was protected during the study. Participants could avail of debriefing support and their responses were anonymized to maintain confidentiality.

**RESULTS**

**Check on group contrasts**

Computation of Mann-Whitney statistics (means are presented as illustration) confirmed that the depression scores (CSED-10) for DD group (M = 11.07, SD = 5.50) were significantly higher than those for ND group (M = 4.60, SD = 2.26), ( $U=29, p < .001^{***}$ ). Importantly, the average score for the DD group was above the cut-off score for depressive symptoms. This finding was essential. Without an appreciable difference between the two participant groups, their comparison would have been meaningless.

Education levels were similar, but there was gender disparity between the groups DD Group (8 female and 7 male) and ND group (11 female and 4 male) and an age difference of 11.9 years (DD Group: 49.7 years; ND Group: 37.8 years). However, analysis of variance of depression scores for gender ( $F(2, 28) = 1.04, p = .81 ns$ ) and age ( $F(2, 28) = 1.27, p = .76 ns$ ) did not show any differences.

**Main Findings**

Both groups provided similar numbers of dissonance experiences. The DD group proffered 25 experiences (1.66 per interview) while the ND group discussed 27 experiences (1.80 per interview). Three main themes included dissonance triggers, dissonance discomfort and dissonance reduction. The quotes below include the following participant information: participant group, number, gender, and age.

***Theme 1: Dissonance triggers (inner conflict)***

In terms of the experiences that led to dissonance, the DD group was much more likely to discuss serious adverse life experiences such as drug addiction, alcoholism, sexual violence, abuse, and suicide. Table 1 provides a side-by-side comparison of the life events that served as dissonance triggers within each group.

**Table 1.** Comparison of adverse life-events related to dissonance by group.

DD Group	ND Group
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Suicide	Regret for inaction
Alcohol/Drug misuse	Fear of public speaking
Self-harm	Fear of failing at a new job
Physical Abuse	Thoughts of infidelity
Sexual Abuse	Neglecting work/life balance
Emotional abuse	Rudeness in the workplace
Marital breakdown	Unfulfilled career aspirations
Workplace bullying	Family guilt
Rape	Family bickering
Violence in the home	Workplace bickering

Here are two examples from the DD group

*I was sexually abused as a child by my father... That affected me a lot. I used to feel sorry for my mother, even though I felt it was her fault. (DD group #03, Female, 58)*  
*About nine years ago, good friends of mine committed suicide in the space of four months... That's when all this started. 'If I should have done this', and 'if I should have done that', ... I felt I could have done more. That's when I really took to the alcohol and stuff. (DD group #01, Male, 35)*

In contrast, the experiences related by the ND group were more commonplace and not of a life-changing nature.

*There was a group starting up [in school] and they needed parents .... I possibly should have put my name forward and didn't... And I felt rotten!... Guilt! ... And later even, still annoyed at myself that I wouldn't give a few hours. (ND group #06, Female, 44)*  
*Sometimes when you're so busy in work that you forget how you say things to people. ... O God that wasn't very nice. I feel really bad ... I wasn't kind, or it wasn't appropriate. (ND group #07, Female, 50)*

**Theme 2: Dissonance discomfort**

The discomfort aspect contained the sub-themes impact (substantial/non-substantial), intensity (major/minor), and duration (enduring/short-lived) (see Table 2).

**Table 2.** Number of statements on Impact, Intensity, and Duration of dissonance discomfort

<b>Dissonance Discomfort</b>	<b>DD Group</b>	<b>ND Group</b>
<b>Impact</b>		
Substantial	15	9
Non-substantial	3	11
<b>Intensity</b>		
Major	17	11
Minor	3	13
<b>Duration</b>		
Enduring	20	16
Short-lived	2	13

*Impact:* The depressed group tended to describe more substantial impact. Generally, with more elaboration, less nuance and self-accusations. One participant attributed the start of auditory hallucinations to this process

*My inner critic gives me quite a bashing on a daily basis. Feeling like I'm the village idiot ... Because of that I've developed hearing voices. (DD group #14, Female, 43)*  
*I've grown up thinking that I should be perfect... I've always had an inferiority complex... That I wasn't as good as anybody else. (DD group #06, Female, 56)*

In contrast, the accounts of the ND group were more benign.

*No, it [seeing many homeless people on trip abroad] didn't ruin the holiday. It was just a factor. (ND group #01, Male, 24)*

*Intensity:* DD participants describe few short-lived experiences, but both groups described high intensity conflicts.

*My depression would be isolation, total isolation. I'd isolate myself in the room and I wouldn't come out. And I'd stay in bed with this inner conflict. Going over it all the time. (DD group #05, Male, 55)*

The following is a typical description of a minor intensity event in the ND group.

*No, not that bad. A mild stressor in my life [knowledge of a family member's probable infidelity]. Mildly uncomfortable. (ND group #08, Female, 24)*

*Duration:* The DD group described few short-lived experiences and many examples of enduring dissonance.

*It [sexual exploitation] was twenty-nine years ago. But I still think about it every day. (DD group #10, Female, 49)*

Participants in the DD group highlighted recurrent dissonance triggering followed by rumination.

*Past memories or situations resurface again and I'd either kind of relive it or just rethink it a lot of the time. I'm almost there again or thinking what I should have done or should not have done or...should've-would've, could've .. It's like a stuck record. It's hard to get away from. (DD group #08, Female, 37)*

*I'll wake up in the morning and if I don't stop myself, ... I'm going through all these situations in my head where I'm going to make a fool of myself. It's stupid because these things are never going to happen, but my brain goes constantly around in circles (DD group #07, Male, 23)*

The following experiences of short duration were representative of the ND group.

*Water off a duck's back [not giving to charity], it probably affects me from anywhere between one to five minutes and then it's gone. (ND group #02, Male, 37)*

*My emotions are intense, but they disappear quickly. (ND group #04, Male, 26).*

### **Theme Three: Dissonance Reduction**

There were noticeable contrasts in how the two groups attempted to reduce their dissonance (see Table 5).

**Table 5.** Summary of dissonance reduction attempts for both groups.

<b>Mode of Dissonance Reduction</b>	<b>DD Group</b>	<b>ND Group</b>
1. Change behavior or cognition	11	18
2. Additional cognitions	31	60

3. Trivialize	3	7
4. Divert attention	18	12

The most common mode of dissonance reduction for both groups was through using additional cognitions (mode 2), such as justifications or other consonant notions.

*That kind of guilt [mistreating family members] can be a good thing as well if you do something about it. (DD group #07, Male, 23)*

*So, I'm not proud of what I did [marital infidelity] but I think that in the end it made us way closer. (ND group #04, Male, 26)*

However, the ND group did describe nearly twice as many additional cognitions as the DD group. In this example, the reduction of the participant's dissonance at choosing not to pursue a much-wanted career in veterinary science included many additional cognitions:

*So I decided, It's ok if you don't get it, you still love the animals but tried a more manageable goal. Rather than killing yourself over something that you probably won't get ... So that's when I chose teaching. To help others reach their goals ... Not so much that I didn't want to be a vet. I just realised that I'm not lazy, but I wouldn't be able to make it into college every morning ... I was just being realistic ... It probably wasn't the best idea for me because I would get too upset when any animal was sick ... now I take care of my own dog, so I'm basically a mini vet in my own house... I think I'm really happy with becoming a teacher. I enjoy it more than I thought I would, thank God. .... And if I decided that I really wanted to help animals I can always go to Dog's Trust, and help ponies and cats down there. So, the best of both worlds, I feel. (ND group #09, Female, 21)*

The least common dissonance reduction mode was trivialization (mode 3). However, again the ND group engaged in twice as many attempts as the DD group.

*It's not a real problem. You have people dealing with serious illnesses, ... it's just you feel sorry for yourself. (DD group #11, Male, 33)*

*And then I realised half-way through sixth year (secondary school) that I didn't really care ... it wasn't meant to be. (ND group #09, Female, 21)*

The ND group also engaged in more behavioral or cognitive changes (mode 1). This person manages her guilt of having left a friend when they got into difficulty swimming by emphasizing this would never happen again.

*It's your natural reaction in that situation, to save yourself ... I feel like I've learned something from that experience. I will never leave someone like that again. (ND group #15, Female, 65)*

While the DD group also mentioned efforts to divert attention (mode 4), those mentioned by the ND group appeared particularly effective.

*Often, I'd go for a run or play sport to feel better (ND group #02, Male, 37)*

*Instead of ending my day in rumination I started keeping a gratitude journal for small things so that you're forced to focus on positive aspects of life, instead of focussing on the negatives. (ND group #04 Male, 26)*

In summary, participants with a depression diagnosis talked about dissonance induced by more serious adverse life events and highlighted more prolonged unresolved dissonance. Ensuing rumination, recurring or persistent, was common in their descriptions. In terms of strategies to reduce dissonance, the depressed group showed signs of being less adept at activating a variety of cognitive resources in comparison with the non-depressed group.

**DISCUSSION**

Overall, differences between the groups were striking, confirming findings of the literature review. Particularly salient was the extent to which serious self-related conflict causing rumination was reported in the depressive group. Several authors have emphasized the role of rumination in precipitating, maintaining, and exacerbating a cycle in which low mood prevails (Nolen-Hoeksema, 1991; Lyubomirsky et al. 2015; Clark, 2020). During this *rumination-depression cycle*, people are focused on the possible causes and consequences of their distress, which interferes with the ability to engage in effective problem-solving (Nolen-Hoeksema et al., 1999; McLaughlin et al., 2007; Nolen-Hoeksema et al., 2008; Kashdan and Rottenberg, 2010), as may be required in dissonance reduction efforts. There is growing evidence that rumination is distinct from normal reflection aimed at solving problems (Gazzillo et al. 2020). Neuroscientists have suggested that rumination represents excessive default-network activation which prevents meaningful reflection (Berman et al., 2011), indicating that the noise of rumination drowns out the attentional processes needed for positive problem-solving.

Thus, while the discomfort persists, rumination efforts provide no added insights, over time leading to mental exhaustion, hopelessness, helplessness and ... depression (in the same way as indicated by Selye (1956) and Maslach (1998) in relation to stress and burnout). The added value of CDT is the inclusion of a *motivational element*. Low mood or depression may not just follow from adverse life experiences, pessimism, or hormonal deficits, but could be the result of a persisting drive to continue efforts to reduce self-related dissonance, even when they have ceased to be effective. Perceiving depression through this lens clarifies how and why depression may be resistant to treatment. This perspective also suggests an alternative emphasis in depression interventions on dissonance reduction or management (Harmon-Jones & Mills, 2019). Instilling rational or positive thinking may not suffice if it does not lead to dissonance reduction.

### ***Strengths and limitations of the study***

The study should be considered first and foremost in terms of its exploratory merits, and its findings in terms of the meaningful additions to the conceptualization of depression. While qualitative study does not make claims to generalization of findings, it should be mentioned that the local Irish context is a limitation. A strong aspect of the study is the inclusion of a group with a diagnosis of depression, which made their responses particularly relevant.

### ***Further Research***

There is scope to continue studying dissonance experiences of people with depression. Implications for depression interventions also need to be considered. Correlational studies could add significantly to the quantitative evidence. It is unfortunate that there are no validated dissonance measures for cognitive dissonance (Bran & Vaidis, 2020). While attempts have been made, none of these provide a parsimonious and comprehensive approach to dissonance measurement within a clinical context. This issue may need to be addressed before the combined study of dissonance and depression can gain traction.

## **CONCLUSION**

The findings suggest that the application of cognitive dissonance theory to depression has the potential to advance the understanding of depression and its treatment. The dissonance mechanism may well be at the core of the rumination-depression cycle.





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## **APPENDIX A: INTERVIEW PROTOCOL**

### **Interview Introduction:**

In advance of the interview a short scenario in which a person describes being conflicted about not giving money to a beggar was presented as an illustration.

### **Opening question:**

1. “As we discussed in advance of the interview, I am hoping to talk about occasions when you felt conflicted about something. Can you think of an occasion in which your behaviour contradicted your principles?”

### **Follow-up questions:**

2. Tell me about this episode...
  - a. How did it begin?
  - b. What was it about this episode that bothered you?
    - i. How would you describe the level of intensity that feeling?
    - ii. How long would this feeling last?
3. How did you cope/get past with the feelings that this experience caused?
4. How did you attempt to resolve this conflict?
  - a. Were you successful?
  - b. Did you have to try different ways to resolve this conflict?
5. Is there anything you would like to add or ask before we conclude the interview?



## APPENDIX B: TEMPLATE ANALYSIS

Broad Themes	Sub-themes (Level 1)	Sub-themes (Level 2)	Sub-themes (Level 3)
<b>Conflict</b>	Self-related dissonance conflict	<ul style="list-style-type: none"> <li>• Feeling specified</li> <li>• Feeling not specified</li> </ul>	
<b>Dissonance experience</b>	Duration	<ul style="list-style-type: none"> <li>• Enduring</li> <li>• Short-lived</li> <li>• Not specified</li> </ul>	
	Energy Levels	• Physical	<ul style="list-style-type: none"> <li>• Energizing</li> <li>• Draining</li> <li>• Not specified</li> </ul>
		• Psychological	<ul style="list-style-type: none"> <li>• Energizing</li> <li>• Draining</li> <li>• Not specified</li> </ul>
	Intensity	<ul style="list-style-type: none"> <li>• Major</li> <li>• Minor</li> <li>• Not specified</li> </ul>	
	Impact	<ul style="list-style-type: none"> <li>• Substantial</li> <li>• Non-substantial</li> </ul>	
	Rumination	<ul style="list-style-type: none"> <li>• Depressive rumination</li> <li>• Ruminative Dissonance</li> </ul>	
<b>Dissonance Reduction</b>	Reduction modes	<ul style="list-style-type: none"> <li>• Change beh. or cog.</li> <li>• Add new cognition</li> <li>• Reduce importance</li> <li>• Ignore or deny</li> <li>• Unsure/miscellaneous</li> </ul>	<ul style="list-style-type: none"> <li>• Specific example</li> <li>• Resolution style</li> </ul>
	Reduction success	<ul style="list-style-type: none"> <li>• Successful (long term)</li> <li>• Successful (short term)</li> <li>• Unsuccessful</li> </ul>	
	Unresolved dissonance	<ul style="list-style-type: none"> <li>• Unsuccessful attempt</li> <li>• No attempt made</li> </ul>	

## **AUTHOR NOTE**

Mark Byrne is a recipient of Trinity College 1252 PhD funding. No funding was received for the study itself. No conflict of interest is reported by the authors.

## **AUTHOR BIOGRAPHIES**

Mark Byrne is a psychologist at Trinity College Dublin, Ireland. His research is in cognitive dissonance and its applications in mental health. Email: [byrnem29@tcd.ie](mailto:byrnem29@tcd.ie)

Agnes Higgins is a Professor of Mental Health at the School of Nursing and Midwifery, Trinity College Dublin, Ireland. Her current research is focused on the lived experiences of mental health problems and on developing recovery focused mental health interventions for people and their families. Email: [ahiggins@tcd.ie](mailto:ahiggins@tcd.ie)

Corresponding Author:

Jan de Vries is an Associate Professor and Subject Leader Psychology in the School of Nursing and Midwifery, Trinity College Dublin, Ireland. His research is focused on cognitive dissonance, its neurological foundations, and applications in society and mental health. Email: [jan.devries@tcd.ie](mailto:jan.devries@tcd.ie)

## SUPPLEMENTAL MATERIALS: LITERATURE REVIEW EXTENDED TEXT

To assess the empirical literature on dissonance theory specifically applied to depression, a systematized narrative review was performed making use of five electronic databases (Academic Search Complete, Cinahl, Medline, PsycArticles, and Psycinfo). A more detailed overview of its outcome is presented in this supplement. As the initial search using the terms depression and cognitive dissonance yielded only 6 empirical studies, the terms inner -, internal -or cognitive conflict were added to the search string. These searches yielded a total of 11 studies in which the relationship between dissonance or inner conflict and depression was the main focus. Included studies tended to focus on dissonance and levels of depression and can be divided into two main areas: 1) findings that relate dissonance (or similar self-related inner conflict) to levels of depression, and 2) the role of dissonance or conflict-based prevention or treatment of depression symptoms.

Seven studies that focused on the *relationship between dissonance conflict and levels of depression* generally led to the conclusion that individuals with more depression symptoms also experienced greater levels of dissonance or inner conflict. The already mentioned study published in this journal by Stalder and Anderson (2014) found that participants who scored higher on depression scales were more sensitive to manipulations inducing dissonance. Their experimental findings also revealed that as the depressed individuals' discomfort levels increased, their ability to reduce dissonance through trivialization decreased. This highlights a connection not only between dissonance conflict and levels of depression but also how individuals with depression manage that conflict, in particular their limitations in 'shrugging off' dissonance by reducing its perceived importance. Stangier et al. (2007) investigated the relationship between self-related internal conflict around life goals and depression. These authors found depression to be associated with significantly higher levels of intrapersonal conflict than were found in a healthy control group. Montessano et al. (2014) studied the relationship between depression and a type of cognitive conflict known as implicative dilemmas (Kelly, 1955). Implicative dilemmas involve awareness of discrepancies between a person's actual and ideal selves (Dorough et al., 2007). The authors found that this type of conflict was twice as prevalent in depressed individuals when compared to a non-depressed participant group. Also, the number of depression symptoms and their severity increased as the number of conflicts increased. Interestingly, van Steenbergen et al. (2010) found that induced low mood may stimulate efforts to address cognitive conflict, implying that in itself low mood may be adaptive, but prolonged low mood, as in depression, may be maladaptive in resolving cognitive conflict. The importance of the self and self-esteem emerged in a study by Rhodewalt and Agustsdottir (1986) which suggested that dissonant self-presentation may lead to contrasting impacts for self-esteem in depressed and non-depressed participants. Their findings suggested that being depressed generates a dissonant response to positive self-presentation, which may perpetuate depression and make it more resistant to change. Furthermore, Miyagi et al. (2017) used a post-decisional dissonance paradigm to compare people with depression with a non-depressed group. In general, after a choice to acquire or discard items, participants reduced their liking of discarded items to reduce dissonance. However, depressed individuals showed less of this, suggesting that depression may be associated with limitations to dissonance reduction tendencies and a propensity to linger on regrets. Findings in other studies were not always clear cut. Baumann et al. (2014) did not find differences in post-decisional dissonance between depressed and non-depressed participants, and Rothenberg (1983) found no significant difference in sensitivity to dissonance arousal between depressed and non-depressed participants. One would have expected more correlational studies, but in the absence of a validated measure (Bran &

Vaidis, 2020) for dissonance, such studies have been notably absent. In some studies dissonance was inferred from attitude change. In other studies, such as in Stalder & Anderson (2014), a discomfort measure was constructed for the study.

Four studies addressed *depression prevention and interventions*. Peterkin (2020) identified that dissonance generated by high effort in engaging in a mental health program was associated with a higher success rate in the reduction of depressive symptoms than a low effort equivalent. Montessano et al. (2017) compared therapeutic outcomes in a depressed participant group and found that improvement in depression coincided with a reduction in the presence and proportion of conflicts in participants. Members of the same team (Paz et al., 2019) concluded that resolving cognitive conflict helped with the reduction of depressive symptoms. Rohde et al. (2016) had similar outcomes, although not statistically significant, when they conducted a pilot trial to test the feasibility of a dissonance-based cognitive-behavioral prevention program in groups of college students to prevent depression symptoms. In conclusion, while this review shows a limited research effort, the findings justify further exploration of the relationship between depression and cognitive dissonance theory.