Running Head: SUBJECTIVE WELL-BEING BUFFERS THE EFFECTS OF SOCIAL EXCLUSION AND EXPRESSION OF IN-GROUP FAVOURITISM IN REAL GROUPS

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Abstract

Human beings are social animals. People need to connect with one another in order to thrive and survive. Yet people are socially excluded by others on a daily basis. A growing body of research reveals that such outcomes can (a) thwart the basic psychological needs of self-esteem, meaning, control and belonging and (b) promote negative outcomes such as prejudice, hostility and in-group favouritism. In spite of such findings, it is also true that not everyone, who experiences exclusion or ostracism, will become depressed or respond negatively to others via hostility and prejudice. As it stands we know little about the factors that determine reactions to ostracism. The primary aim of this thesis was to redress this issue by assessing the extent to which subjective well-being might serve as buffer in reducing the negative effects of ostracism on psychological needs and in-group favouritism. To this end four experiments were conducted.

Study 1, sought to examine the link between well-being and in-group favouritism amongst men and women. The results showed that, (a) low baseline levels of subjective well-being were associated with greater patterns of in-group favouritism and (b) greater patterns of in-group favouritism led to increased levels of well-being.

Study 2, sought to examine the link between well-being and in-group favouritism, following threat manipulated through progressive ostracism amongst minimal groups. The findings revealed that participants tended to show in-group favouritism regardless of psychological threat, and that people with high well-being showed more in-group favouritism.

Study 3 compared the differences in psychological threat as a function of progressive ostracism as opposed to constant ostracism. The data suggest that the latter was more psychologically threatening. Although there were no differences in perceived exclusion between the two methods of ostracism, participants subjected to constant ostracism reported lower levels of control and meaningful existence.

Study 4 used constant ostracism to subsequently test the extent to which subjective well-being, in the context of exposure to pleasant media, buffered the expression of in-group favouritism and threats to psychological needs. The findings indicate that (a) the in-group was evaluated less favourably than the out-group, and the more excluded participants felt, the lower they rated the in-group and (b) exposure to pleasant media content, prior to ostracism feedback served to buffer psychological needs. Ostracised participants with higher (as opposed to lower) well-being, reported higher levels of control and meaningful existence when exposed to pleasant media content.

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Glossary of Key Terms

Key Term	Definition	Context
Discrimination and Prejudice	Discrimination may be defined as the preferential treatment of one person over another, or the withholding of fair treatment on the basis of belonging to one group rather than another. Prejudice may be defined as negative attitude or feeling expressed towards a person on the basis of their group membership (see Brown (2010).	In the current thesis, the terms discrimination and prejudice are used interchangeably with the term in-group favouritism for ease of presentation and readability.
In-group Favouritism	Any judgement or act that denotes the differential evaluation, or allocation of resources that favours ingroup members over outgroup members.	In the current thesis, in-group favouritism was assessed using the allocation of white noise to in-group and outgroup members (in study 1) and the differential evaluation of in-group and outgroup members (in studies 2, and 4).

Minimal Groups	Experimentally contrived social categories where membership is arbitrarily assigned, and group members have no prior contact with one another. See Tajfel's (1970) Minimal Group Paradigm.	In studies 2, 3 and 4, minimal groups (formed on the basis of an alleged preference for Klee over Kandinsky paintings) are used in comparison to real groups (i.e., that is groups based on pre-existing social categories such as nationality or gender).
Real Groups	Group membership that is based on pre-existing social categories such as gender, nationality.	In this thesis, real groups are used in comparison to minimal groups where members have no prior experience being members of the given group.
Social Exclusion	In some circumstances social exclusion may be defined as the experience of being kept apart from others physically or emotionally (see Riva & Eck, 2016).	In this thesis, social exclusion is used broadly to refer to any subjective experience of being ignored by others.
Social Ostracism	Being ignored by members of one's group. See Williams (2007,2009).	Ostracism is the technique that has been employed in

		this thesis to induce a sense of social exclusion.
Subjective well-being	The self-evaluative feeling that one's life is going well, or that one is living a good life. See Diener (2009).	In this thesis, well-being is assessed using self-reports, and the scores from these are considered to reflect one's subjective level of well-being.
The Four Psychological Needs: Esteem, Belonging, Control, Meaning.	Williams (2007, 2009) has argued that people have four fundamental psychological needs. These needs comprise self-esteem, belonging, control and meaning. All have been repeatedly shown to be impacted through ostracism (Williams (2007, 2009).	The four psychological needs of belonging, self-esteem, control and meaning are measures used to assess the impact of ostracism via the Needs Satisfaction Scale, see Williams (2007). The scale allows for the assessment of a composite measure, as well as the assessment of separate needs.

Chapter 1: Introduction

In this chapter I provide a brief overview of the problem under investigation and highlight its relevance for study. I pinpoint where the gap remains in research, and the contemporary directions taken by researchers to fill this. In essence, the aim in this section is to demonstrate how this thesis fits into current research.

1.1 Background

Experiences of social inclusion and/or exclusion result in a sense of belonging or non-belonging for people around the world. Some people find themselves included in the different groups that they encounter, while others find themselves excluded. At any one time, in any given social setting, people are at risk of being socially excluded by virtue of being different. This includes, but is not limited to, differences in age, gender, ethnicity, appearance, sexual orientation, religion, education level, mental health status, physical health/ability, employment status, wealth status, country of origin, citizenship, migration status, political affiliation, incarceration status, language/accent spoken in, family type/size, and romantic relationship status.

Research indicates that most people are socially excluded daily, and that exclusion not only affects the person who is excluded, but may at times lead people to engage in indiscriminate violent acts against those who had little to do with the original exclusion (Hartgerink, VanBeest, Wicherts, & Williams, 2015). Essentially, one can expect to be socially excluded at least once a day (Nezlek, Wesselmann, Wheeler, & Williams, 2015). It has also been found that those who join extreme groups are typically those who feel isolated, marginalised, or excluded from within their society (e.g Ebner, 2020; Williams, 2007). A number of studies on chronic peer rejection have associated social exclusion with a range of negative outcomes such as anxiety, unhappiness, anger, depressive symptoms, low self-esteem, and cognitive impairment (Nesdale et al., 2010). Other findings on group rejection reported by Gaertner, Iuzzini, and O'Mara (2008) showed that social rejection and perceiving

the rejecter as being the member of a given group, functioned together to produce multiple-victim incidents of aggression. The results showed that people who experienced rejection and who perceived the rejecter being a member of the given group behaved more aggressively against that group (Gaertner et al., 2008).

Constant social exclusion in interpersonal settings is also known to lead to a lack of satisfaction with personal relationships (Mellor, Stokes, Firth, Hayashi, & Cummins, 2008). Researchers largely agree that the psychological benefits of social relationships come from the quality of the relationships, and not necessarily the quantity of them (e.g Andersson, 1998; Baumeister & Leary, 1995; Cruwys, Haslam, Dingle, Haslam, & Jetten, 2014; Ernst & Cacioppo, 1999; Kelly, 2001; Mellor et al., 2008; Rokach, 2004). Cruws et al. (2014) note that people are uniquely sensitive to rejection and interpersonal conflict as compared to other stressful life events, and that those who lack meaningful social relationships are far more prone to depression and other negative outcomes (Cruwys et al., 2014).

According to Richman and Leary (2009) people might respond to exclusion with either prosocial or antisocial reactions. With respect to the former, individuals may show increased cognitive processing of social ques, work harder at tasks to increase their inclusionary value, mimic others to increase liking, find alternative sources of social support and group identification. With respect to the latter, antisocial routes may include anger, aggression, lowered empathy, and impaired self-regulation (Richman & Leary, 2009).

Rather than simply referring to positive and negative reactions to exclusion, Williams (2009), on the other hand, proposed a temporal model of ostracism. In this model, he predicted three stages to the experience of ostracism; namely, the reflexive stage which comprises the immediate experience of the event; the reflective stage which comprises the evaluation of the event, and the resignation stage which occurs during prolonged ostracism. Additionally, he proposed four main psychological needs that are threatened by ostracism - belonging, esteem, control, and meaningful existence (Williams, 2009). However, although

researchers hold certain expectations as to how people will react to social exclusion, there is no way of predicting how any one person will behave. Time and time again, we are surprised by events such as mass shootings, and why the particular person behaved so, when others of similar social backgrounds did not. There is great interest in why not all people suffering exclusion suffer the expected negative outcomes (e.g Matheson, McQuaid, & Anisman, 2016). Research efforts have consequently turned toward what buffers or moderators may exist to in the experience of social exclusion.

Some researchers have theorised social inclusion as a likely counter to the negative effects of social exclusion (e.g Jetten et al., 2017). However, because social inclusion is not always available to all people, a problem remains. It does not follow that everyone will have access to inclusion in the different groups that they encounter. Additionally, one of the negative effects of social exclusion is that following this experience, people may tend to avoid the risk of further rejection by withdrawing not only from those who have rejected them, but also from others whose acceptance they doubt (Richman & Leary, 2009).

Consequently, there is a need for further research that shows how we might counter the negative effects of social exclusion. This line of inquiry is not new, as questions have been raised by researchers as to why not all people who experience social exclusion go on to suffer the expected negative outcomes (Matheson et al., 2016). Patterns are beginning to emerge as regards differences in how exclusion impacts people, and how they recover from it (Hales, Wesselmann, & Williams, 2016). Although it has been assumed that perceiving exclusion leads to immediate thwarted psychological needs and negative affect (Williams, 2009), researchers are beginning to highlight possible differences in experiences of exclusion (Hales et al, 2016).

Williams (2007, 2009) in his temporal need model of ostracism has argued that there are few individual differences in the immediate experience of ostracism. Differences, he argues, emerge only after the ostracism event, when people have had time to evaluate it.

These arguments have largely gone unchallenged, despite obvious differences in people's life experiences. It does not follow that a given level of social exclusion affects everyone the same way. It further does not follow that everyone who is socially excluded goes on to suffer the expected negative effects. Indeed, according to Timeo, Riva, and Paladino (2019), despite extensive social exclusion research in the past few decades, very few studies have focused on coping strategies and factors that buffer it's effects.

Exceptions to the above can however be found in the works of Teng and Chen (2012) and Hales et al. (2016). These researchers investigated strategies such as social support, high self-esteem, prayer, self-affirmation, and distraction as buffers to social exclusion. Hales et al. proposed the reflective stage of ostracism (post ostracism) to be the optimal point of intervention after investigating prayer, self-affirmation, and distraction as buffers to the negative effects of ostracism. They noted that interventions aimed at the reflexive stage (pre-ostracism), tested using acetaminophen (a pain-relieving medication), and alcohol (in a separate study), held serious side effects. In addition to these chemical interventions having negative effects, the researchers also argue that the reflexive pain of ostracism is adaptive, and as such it should not be completely shut down, as people may risk failing to recognize situations in which they need to correct their behaviour. The researchers, in support of Williams' (2007, 2009) view of the impermeability of the reflexive stage of ostracism, concluded that interventions produce better outcomes if they follow ostracism and not when they precede ostracism.

In the current thesis, I argue for interventions that precede ostracism. In so doing, I challenge Williams' (2007, 2009) argument that ostracism-induced distress is resilient to moderation at the reflexive stage, i.e. resistant to moderation during the event. According to Williams, differences in recovery relate to how the event is appraised, such that, individuals with varying traits cope differently to rejection and exclusion after making an appraisal of the incident. I challenge the idea that moderation only occurs at the reflective stage of recovery,

and posit that the threats to psychological needs (i.e., belonging, esteem, control and meaningful existence) can in fact be lessened during the ostracism event. I do this by testing differences in ostracism's effects for those higher or lower in subjective well-being when subjected to the same levels of social exclusion. I test this not only with baseline subjective well-being in Studies 2 and 3, but also in study 4 by additionally manipulating mood pre-ostracism, and checking for subsequent differences in threatened psychological needs via a between-subject design.

The underlying premise of the thesis is, that subjective well-being - the overall feeling that one is living a good life (regardless of how such a feeling comes about), might buffer a person from the negative effects of an exclusion event. Support for the idea that subjective well-being might buffer or moderate the effects of ostracism may be derived from Fredrickson's Broaden - and - Build theory (Fredrickson, 2001). According to this perspective, activities such as social play, social amusement, and excitement foster social bonds and produce lasting attachments. Moreover, such activities result in emotions such as joy, interest, contentment, pride, and love that are functional in building psychological reserves (Fredrickson, 2001). Such emotions may serve as potential buffers to stressful experiences (Mireault, 2016). Thus, Diener, Lucas, and Oishi (2018) argue that positive emotions help people bounce back from negative events, while Antoine et al. (2018) asserted that such feelings may very well counter negative ones, through what Fredrickson termed an undoing effect. That the negative effects to systems such as the cardiovascular, can be reset to pre-stress levels by exposure to pleasant experiences (Fredrickson 2001).

Further to the aforementioned benefits of positive emotions associated with subjective well-being, researchers have begun to question whether such benefits could extend beyond the individual to the group level. A number of researchers have for example posited that positive emotions could influence intergroup contact (e.g., Pettigrew, 1998). Early work in this area by Isen, Niedenthal, and Cantor (1992) found that positive affect increased cognitive

flexibility in the way people related positive and neutral ideas to one another. They noted that because people are categorized in varying levels of inclusiveness, inducing positive affect could aid the recategorization of others into a more inclusive superordinate category through enhancement of the perceiver's ability to see the relationships and connections between categories. For example, if one tended to categorize men and women in ways that were not inclusive of both genders, then the induction of positive affect would perhaps facilitate cognitive flexibility and allow attention to be paid to similarities between the genders, hence forming a more inclusive category. Building onto this, Dovidio, Gaertner, Isen, and Lowrance (1995) posited that positive emotions could facilitate the consideration of individual characteristics of others as opposed to stereotypes, and that those who experienced such feelings would be more inclusive.

Other studies in this area such as that conducted by Mackie et al. (1989) however, demonstrated that people in a good mood, and who also learned unfavourable information about the out-group, were more likely to overestimate stereotype-confirming negative attributes. Later research by Lount (2010) shed light on this unexpected finding, where positive mood increased or decreased out-group trust depending on the situational cue, such that when the situational cues promoted trust, people with a positive mood increased their trust of the out-group, and when the cues promoted distrust, people in a positive mood decreased their trust.

In summary, the negative effects of social exclusion appear to impact people differently. Whereas some people are worse off by being at risk of engaging in indiscriminate violent acts, others appear not to suffer these effects. Despite these different outcomes, only a few studies have so far investigated what variables impact or buffer experiences of social exclusion (e.g., Gómez et al., 2011; Hales et al. 2015, 2016; Molet et al., 2013; & Teng & Chen 2012). In the following thesis I propose and test the idea that subjective well-being - the feeling that one is living a good life (regardless of how this feeling comes about), might buffer

one from the negative impact of social exclusion. In this regard the thesis will focus on two particular outcomes; threatened needs (i.e., lower belonging, self-esteem, control and meaning) and in-group favouritism. Each of these outcomes have been repeatedly shown to be negatively affected through a wide variety of social exclusion experiences (e.g., Leonardelli, Pickitt & Brewer, 2010; Williams, 2009).

1.2 Social Exclsuion

In-group favouritism to an extent, implies the differential treatment of people, depending on whether or not they are considered to be a part of the given in-group. This favouritism process, invariably results in the inclusion of the person favoured, and exclusion of the other. Different terms are used to define experiences where in one way or another, a person receives communication that they are less socially valued by others. One such term, social exclusion, is defined as the experience of being kept apart from others physically or emotionally (Riva & Eck, 2016). Such experiences may involve a person receiving direct negative attention, in which case the event is classified as rejection, or they may involve being ignored, in which case the event is termed ostracism (Wesselmann, Michels, & Slaughter, 2019). Whereas non-engagement in such a context is termed ostracism, negative engagement is termed active rejection (Wesselmann et al., 2019). In- group favouritism, discrimination, and bias can be considered closely related terms , where the first term is the general tendency to evaluate one's group and its members more favorably than non-members /the out-group (Hewstone, Rubin, & Willis, 2002). The behavioral expression of in-group favoritism is termed discrimination (Whitley, 2016), as one person is favoured over another. As such, the expression of in-group favouritism may include having a preference to engage with one person over another, or engaging positively with the preferred person, and negatively with the person who is not preferred. In such an instance, in-group favouritism is expressed in the positive engagement with those like one. The implications of this favouritism process are a

sense of inclusion for the person favoured, and a sense of exclusion for the person who is not favoured.

1.2.1 Impact of Social Exclusion and Ostracism

It is now thought that feeling excluded activates some of the same neural pathways that are activated by physical pain (Miller et al., 2014), and negatively affects self-esteem, mood, belongingness, perceived control, and belief in a meaningful existence (Hales et al. 2016). It is expected that given the importance of social bonds, exclusion should be countered with efforts to regain inclusion, thus, we might expect that those who have been excluded would show increased conformity, mimicry, task persistence and desire for social contact (Gaertner et al., 2008). Other findings however indicate antisocial effects such as decreased prosocial behaviour and increased aggression (e.g., Buckley, Winkel, & Leary, 2004; Chow, Tiedens, & Govan, 2008; Wölfer & Scheithauer, 2013), and reduced self-control and self-regulation (Blackhart, Williamson, & Nelson, 2015).

Leary, Tambor, Terdal, and Downs (1995) developed sociometer theory to describe a social monitoring system that humans are thought to possess for the function of signalling when the individual's inclusionary status is at risk. They proposed that once signalled, the social monitoring system motivates the individual to attend to cues that others emit to enhance inclusion and avoid rejection. According to Williams (2009), the first step in the social monitoring system is to be hypersensitive to social information. Continuous exposure to ostracism however, is thought to deplete the resources necessary to motivate the individual to fortify threatened need, thus leading eventually to resignation, alienation, helplessness, and depression (Williams, 2009).

Many researchers maintain that the link between being a target of ostracism and targeting others for acts of violence may be so strong that it negates concerns for acceptance and liking by others, self-preservation, self-regulation or punishment (Williams, 2007). It is further predicted that ostracism may lead to maladaptive decisions and behaviours because the

need to belong may be so strong for some people that they seek out any group that will have them, including cults and extremist groups (Williams, 2007).

1.2.2 Buffers to Social Exclusion and Ostracism's Effects

To date, very few studies have tested what buffers may exist to social exclusion's negative effects (Timeo et al., 2019). This could partly be because researchers believe that feeling the shock of being excluded is evolutionary, whereby there is a necessity of a pain detection system for the purposes of ensuring survival (Williams, 2007). To know that one is out of favour with the in-group, one needs to feel the ensuing shock so as to rectify the situation.

A second plausible reason as to why there is a paucity of research studies that focus on effects of buffers to exclusion relates to the idea that interventions are best employed after ostracism, and that pre-ostracism interventions would not be as efficient (e.g., Hales et al., 2016). However, because people do not experience life's events in the same ways, by virtue of individual differences, it does not follow that pre-ostracism interventions should be ruled out. Furthermore, strategies that aim to undo the negative effects of exclusion after the event are not guaranteed to work. Indeed, research shows that people may withdraw from human contact following exclusion (Richman & Leary, 2009), behave more aggressively (Buckley, Winkel, & Leary, 2004; Chow, Tiedens, & Govan, 2008; Wölfer & Scheithauer, 2013), and suffer cognitive depletion (Greitemeyer, Fischer, & Kastenmuller, 2012). As such, there may be little or no room to apply an effective intervention post-ostracism. Thus, a more effective strategy might be to investigate the factors that cushion people from the negative impact of social exclusion to begin with, as we cannot always repair the damage caused by such events. This is a case for 'prevention being better than the cure'.

A third reason why there appears to be very few studies on buffers could be that studies that have looked into moderators and buffers to the effects of events such as perceived

discrimination, have not classified such events as social exclusion experiences. If the effects of perceived discrimination were considered social exclusion experiences, one could draw from the research on moderators and buffers in this area. Support for this can be found in drawing from research such those by Begeny and Huo (2018). They found that although highly identifying minorities in given countries perceived more discrimination, and were also subject to more discrimination than lower identifying minorities, perceived membership value within their ethnic group shaped their mental health, in that minorities who felt valued and respected among members of their ethnic group, had lower levels of psychological distress and anxiety, as well as greater well-being (Begeny & Huo, 2018).

Similar findings by Jasperse, Ward, and Jose (2012) revealed that a strong Muslim identity amongst a sample of New Zealand Muslim women, moderated the relationship between perceived religious discrimination and well-being (such that for this sample there was a buffering effect at play). Whereas strong affiliation to their group exacerbated the negative relationship to perceived discrimination and well-being, engaging in Islamic identity practices buffered these negative effects via psychological pride and belongingness (Jasperse et al. 2012). In an effort to understand the mechanism by which social identities might buffer individuals from social exclsuion events, Greenaway et al. (2016) tested the hypothesis that social identities improved well-being because they satisfied the basic psychological needs of belonging, self-esteem, control and meaningful existence. They found support for this hypothesis, and further showed that social identities satisfied psychological needs in a global sense rather than with respect to any one particular psychological need (Greenaway, Cruwys, Haslam, & Jetten, 2016).

In summary, because the negative effects of social exclusion can be long lasting, and have been linked to poor social and health outcomes for some victims and not others, researchers have begun to look into ways that people could be buffered from these effects. Interventions aimed at buffering from the negative effects of social exclusion and ostracism

are currently classified into two categories. The first is concerned with the perception of the event, the second is concerned with restoring the threatened psychological needs (Timeo et al., 2019). According to the researchers, strategies relevant to the first category typically involve changing how the event is perceived, including positive re-appraisal, self-distancing, distraction and focused attention, while strategies relevant to the second category typically work by restoration of threatened psychological needs of belonging, esteem, control and meaningful existence.

Strategies also differ significantly in terms of whether they are employed before or after the exclusionary event (Timeo et al., 2019). Pre-exclusion interventions (i.e states existing or employed before the exclusionary event), that have been found to be effective, include those that indicated the companionship of a close other may buffer the negative effects of ostracism for people with a strong sense of self-esteem (Teng & Chen, 2012). Yaakobi and Williams (2016) on the other hand found that less anxious and more avoidant individualistic, but not collectivist participants were less distressed by ostracism. They also found that recall of an attachment event compatible with the participant's attachment style eliminated distress in both individualistic and collectivist ostracized participants as measured on the Needs Satisfaction Scale.

Focused attention such as with mindfulness, i.e. paying attention to one's present positive experiences pre-ostracism, has also been found to aid in the recovery of psychological needs (Molet, Macquet, Lefebvre, & Williams, 2013). A further variable thought to moderate the effects of ostracism has been outlined by Gómez, Morales, Hart, Vázquez, and Swann (2011). They found that irrevocable ostracism increased endorsement of extreme, pro-group actions among people whose personal identities were fused with their group identities. Gómez et al. concluded that although reactions to ostracism may be pervasive, they are neither invariant nor inevitable, and in fact, like most important

psychological phenomena, responses to ostracism are moderated by the internalized experiences of victims (Gomez et al., 2011).

In one other pre-ostracism interventions, it was postulated that because the neural connections for physical pain are similar to emotional pain, interventions that reduce physical pain should also be able to reduce emotional pain (Hales, Williams, & Eckhardt, 2015). They tested this idea to examine whether alcohol would reduce emotional pain following ostracism. What Hales and colleagues term 'subjective intoxication', was found to be associated with greater needs satisfaction and positive affect amongst those who were ostracized. Thus, the evidence suggests that alcohol could function as a buffer to salve the pain of ostracism (Hales et al., 2015). In spite of this, but in light of the other harmful effects of alcohol, Hales et al. nevertheless concluded that alcohol was not a practical means by which to counter the negative effects of ostracism. Despite this, the study did however, serve the purpose of providing support for the hypothesis that, contrary to previous assertions, the painful reflexive stage in an ostracism experience can in fact be moderated (pre-ostracism).

Overall, there appears to be speculation as to how different strategies and processes may produce buffering effects to experiences of social exclusion. To date, however, no study has tested the potential input of subjective well-being in this regard. The primary aim of the following thesis is to help redress this state of affairs and thereby examine the premise that the feeling that one is living a good life, regardless of how such a feeling comes about, might buffer one from the negative effects of social exclusion.

1.3 Well-being as a Buffer

What does it mean to be well and to live a good life? Who is best placed to answer this question? Is it an outside observer looking in on another person's life, or is it the person themselves making an assessment of their life? Furthermore, is well-being an end state in and of itself that we aspire to reach, or is it in fact functional? These are some of the questions this section addresses with the aim of linking well-being to social exclusion. With the

development, and subsequent testing of the Broaden and Build theory, numerous studies have provided support on the functionality of positive emotions (e.g., Fredrickson & Joiner, 2018; Ghamarani, 2012; Gloria, Faulk, & Steinhardt, 2013; Kearney et al., 2014; Liao & Weng, 2018; Philippe, Vallerand, Houlfort, Lavigne, & Donahue, 2010; Tugade, Fredrickson, & Barrett, 2004). According to the theory, activities such as social play, social amusement, and excitement result in emotions such as joy, interest, contentment, pride, and love that are functional in building psychological reserves (Fredrickson, 2001). Researchers go as far as asserting that such emotions serve as potential buffers to stressful experiences (Mireault, 2016), and help people bounce back from these events (Diener et al, 2018). Given that social exclusion and ostracism have been demonstrated to be largely threatening and stressful, they present contexts in which to test these suggested well-being buffering effects. Futhermore, because the functionality of positive emotional states has also beeen extended to being facilitative of cognitive flexibility that allows attention to be paid to similarities between people, and facilitative of inclusiveness (e.g., Dovidio et al., 1995), there is also context to test buffering the expression of in-group favouritism.

1.3.1 Theories on Well-being

A person's subjective well-being can be considered to represent the cognitive and affective evaluations of their life at a given point in time (Busseri & Sadava, 2011). High subjective well-being is the general sense that one is leading a good life, regardless of how this feeling comes about, and regardless of how other people see the person's life (Diener et al., 2018). This hedonic approach, that has to do with how people feel at any given point in time, in terms of positive and pleasurable feelings, is considered the best way to measure subjective well-being (Kringelbach & Berridge, 2009). Indeed, it has been found that people use current salient information in their environment to make their judgements on how well their life is going at the given moment in time (Kahneman, 1999).

Subjective well-being has previously been viewed as an end state that people seek for its own sake, however, a different approach in psychology today is its function in guiding or moderating behaviour (Diener & Seligman, 2009). One theory that has brought about this change being the aforementioned Fredrickson Broaden and Build theory. It is posited that positive feelings allow individuals to broaden their thought-action acumen, and build intellectual, psychological, social, and physical resources over time (Kesebir & Diener, 2009). Positive affect and well-being are believed to produce a state from which people can confidently explore their environment, approach new goals, and build important personal resources (Cohrs, Christie, White, & Das, 2013). It is now known that positive emotions can in fact change perception and shift how we think about the world, hence such feelings are functional (Kiken & Fredrickson, 2017).

Some proponents of positive emotions and positive psychology go as far as asserting that subjective well-being contributes to global peace by way of individuals' positive experiences contributing to positive personal, interpersonal, and inter-group relations (Cohrs et al., 2013). It is also possible that the factors that contribute to subjective well-being such as socializing with friends and consequent feelings of positive mood, draw from the same neurobiological roots that evolved for sensory pleasures (Kringelbach & Berridge, 2009). Given the above, and that psychological pain from the effects of social exclusion plausibly affect the same sensory pathways as pain and pleasure (Kringelbach & Berridge, 2009), it is expected that the experiences that lead to positive well-being or interventions that improve subjective well-being, if employed before an exclusionary experience, could possibly impact the outcome of the experience.

1.3.2 Measuring Well-being

Theories on well-being naturally link to measurement of the construct, because how the construct is defined largely determines its operationalization and assessment. When

Bradburn (1969) developed scales to one's well-being, he found that positive and negative affect were relatively independent of one another. Since then, researchers have sought various ways of operationalizing and measuring the construct. No perfect measure exists, and so one must consider the merits and demerits of the available scales and select which best serve the intended purpose (Deiner, 2009b).

Some researchers have proposed that well-being comprises six core dimensions - autonomy, environmental mastery, self-acceptance, positive relations with others, purpose in life, and personal growth (Ryff, 1989), while others have proposed looking at the mirror opposites of the symptoms of depression and generalized anxiety (Brulé & Maggino, 2017). The proposal of well-being as the mirror opposite of depression and anxiety could be because some researchers believe that the absence of negative affect implies the presence of positive well-being. However, Bradburn (1969) argued contrary to this, and asserted that both the negative and positive aspects of well-being can be present at the same point in time and are not mutually exclusive. What he may have been referring to is the possibility for people to report experiencing both negative and positive life events, and for these two reports to be unrelated. His findings have indeed since been explained as having to do with the fact that numbers of desirable and undesirable life episodes are themselves unrelated, but their combined analysis may yield a third representative factor of well-being; and that there exist relatively fixed personality dispositions such as neuroticism and extraversion that tend to come up as unrelated, and that may influence self-reports of well-being (Brenner, 1975; Diener & Emmons, 1984; van Schuur & Kiers, 1994; Warr, Barter, & Brownbridge, 1983; Wijbrandt & Martine, 1995).

There remains no clear theoretical criteria that could be used to decide which of the proposed subjective well-being elements should be included in measures, and hence it is recommended that multiple dimensions of well-being be measured simultaneously (Brulé &

Maggino, 2017). This implies the best practice of measuring well-being is to use more than one well-being assessment in any given study.

Further issues that have been raised by researchers in measuring subjective well-being include the extent to which a measure is influenced by momentary mood. However, it is now known that momentary feelings/thoughts about how good one's life is, and more global perceptions, both constitute subjective well-being (Kahneman, Diener, & Schwarz, 1999). Other challenges in measuring subjective well-being that researchers keep in mind include possible conscious misreporting and response styles associated with people stating higher scores on the construct, when they could very well be feeling lower than what they report (Brulé & Maggino, 2017). However, support for the appropriateness of current subjective well-being measures lies in the fact that they correlate moderately well, have adequate reliability and internal consistency, and sufficiently discriminate the construct from related and unrelated constructs (Diener, 2009b).

1.3.3 Correlates of subjective well-being

Because well-being has for a long time been viewed as a desirable state, many researchers have focused on the pathways to this desired destination. Well-being has been found to correlate with many social relationship variables (Argyle, 1999), such as belonging and loneliness (Mellor et al. 2008). According to Mellor et al., loneliness and the need to belong are two related constructs that are thought to be components of well-being (Mellor et al., 2008). Indeed, subjective well-being researchers do not deny the importance of social relationships (or any other similar variables) in impacting subjective well-being, they however, conceptualize such variables as being part of one's subjective evaluation of how good life is as a whole (Diener et al., 2018). For example, if one had just made a new friend and felt happy about this, and if subsequently asked to rate how well their life was going, they may very well give a high rating after factoring in this new relationship, in relation to other

events in their life at any given time. It is an argument of interaction of variables, not merely a sum of parts.

There is also growing evidence that well-being leads to good social relationships and does not merely follow from them (Diener & Seligman, 2009). A pattern has been detected whereby people with higher subjective well-being are more outgoing, sociable, and have higher quality social relationships (Diener & Seligman, 2009). Further research has demonstrated that subjective well-being can indeed influence people to be more sociable and to experience higher quality social relationships (Diener et al., 2018). Support for this has been found in a number of studies. For example, research by Cunningham (1988) demonstrated that when positive mood was experimentally induced, participants became more talkative and self-disclosing. Likewise children who had positive mood induced exhibited better social skills and more self-confidence (Kazdin, Esveldt-Dawson, & Matson, 1982).

Other studies found that children with low subjective well-being had social problems later in life (Martin, Huebner, & Valois, 2008), and that young adolescents who were high in positive emotions had less conflictual relationships later in life (Kansky, Allen, & Diener, 2016). Further, a literature review by Walsh, Boehm, and Lyubomirsky (2018) revealed that overall, happy people were more popular and likable and that subjective well-being was predictive of marriage, less likelihood of divorce, and lower probability of changing jobs.

A bidirectional relationship between subjective well-being and social belonging has consequently been proposed. Support for this idea has been provided by Tian, Zhang, Huebner, Zheng, and Liu (2016). This research found that students, who experienced higher levels of life satisfaction and more frequent positive affect, reported increased levels of school belonging and well-being. Thus, Zhang et al. concluded that environments that satisfy students' need for belonging and increase subjective well-being simultaneously are ideal for harnessing this bidirectionality.

Other life events that have been found to be related to subjective well-being include income, age , gender, race, employment, education, religion, marriage, family, life events, and biological influences (Lucas & Diener, 2009). It is thought that people choose life circumstances they believe will improve or maintain their happiness, such as high paying jobs, where to live, and short commutes (Lucas & Diener, 2009). However, it has been found that people overestimate the importance of money, as once people have their basic needs met, income ceases to matter so much to happiness levels (Argyle, Kahneman, Diener, & Schwarz, 1999). As societies grow wealthy, differences in well-being are less frequently due to income, and more frequently due to factors such as social relationships (Diener & Seligman, 2009). There is also support that happiness is related to factors such as high self-esteem, feelings of personal control, and extroversion (Cohen, 2001).

In summary, with the shift in view from well-being as an end in and of itself, to the view of its functionality in learning, problem solving and buffering of stressful events, it's plausible that this functionality could extend to the buffering of, and recovery from social exclusion. Furthermore, because positive emotions are also now posited to facilitate a change in our perception of the world and of other people, there is potential for high subjective well-being to facilitate positive interpersonal and intergroup interactions, perhaps thereby suppressing in-group favouritism and encouraging fairness.

In the following set of studies, it is expected that higher subjective well-being will be associated with fewer instances of in-group favouritism, and that those given the opportunity to express in-group favouritism, and who do so, will have an increase in their subjective well-being. Higher subjective well-being is also expected to be associated with less threat to esteem, sense of belonging, control and meaning when faced with psychological threat.

Chapter 2: Research Overview

The current research utilised predictions derived from Fredrickson's Broaden and Build theory and Dovidio's work on prejudice reduction. The former suggests that positive emotions would act as buffers to stressful experiences (Fredrickson, 2001), and the latter suggests that positive emotions amongst category members reduce prejudice and promote inclusivity (Dovidio et al., 1995). In keeping with these perspectives, it was predicted that people with high subjective well-being would be (a) less affected by social exclusion, in so far as their basic psychological needs of belonging, esteem, control, and meaningful existence would be greater, and (b) show less in-group favouritism. In addressing these two primary questions, four studies were conducted.

In Study 1, we used real groups, i.e. pre-existing social categories (based on gender) to assess the extent to which (a) baseline subjective well-being impacts on in-group favouritism, and (b) in-group favouritism impacts on subsequent levels of well-being. The expectation is that those higher in subjective well-being will show lower levels of in-group favouritism. The subsequent expression of in-group favouritism was expected to lead to gains in well-being.

In Studies 2 and 3, using minimal groups (categories comprised of arbitrary criteria), we assess the extent to which high and low levels of well-being, impact on reactions to need threat (manipulated via cyber-ostracism) and in-group favouritism. The expectation is that those higher in well-being would suffer less psychological threat, report higher psychological needs satisfaction overall, and consequently show less in-group favouritism.

In Study 4, using minimal groups, we assess the extent to which baseline levels of well-being interacted with media manipulations of mood to impact (i) reaction to psychological threat (manipulated via cyber-ostracism) and (ii) in-group favouritism.

Chapter 3: Studies 1-4

3.1 Study 1: In-Group Favouritism with Real Groups Men vs Women

In this study we employed the use of real groups (based on gender), to examine the association between well-being and in-group favouritism. Research indicates that high well-being functions to make people think in terms of people's individual characteristics and therefore be more inclusive of others. Consequently, in this study we assess the extent to which (a) baseline levels of well-being amongst men and women are associated with subsequent patterns of in-group favouritism and (b) the display of in-group favouritism is associated with subsequent levels of well-being. Two hypotheses are tested. The first is that high levels of baseline subjective well-being will be associated with lower in-group favouritism, and the second is that the display of in-group favouritism will lead to elevated well-being.

3.1.1 Method

3.111 Participants.

Eight-hundred and fourteen participants (403 women and 411 men) took part in this this study. All were recruited through the online Mturk network and paid NZ$ 15 for taking part.

3.112 Design.

Women and men were randomly assigned to an in-group favouritism or fairness condition. Those assigned to the in-group favouritism condition (n = 408) were given the opportunity to evaluate in-group and out-group members (i.e., women and men) respectively. Those assigned to the fairness condition (n = 406) were given the opportunity to evaluate women and men equally. The well-being of all participants was assessed prior (at time 1) to and following (at time 2) the evaluative tasks.

3.113 Materials and procedure.

All participants were presented with a scale assessing subjective well-being. This was the Satisfaction With Life Scale (SWLS) developed by Diener, Emmons, Larsen, and Griffin (1985). This scale taps the cognitive component of well-being and comprises 5-items (e.g., 'I am satisfied with my life', Cronbach's alpha = .89, n = 814). Responses were scored on a 7-point Likert Scale (strongly disagree-1 to 7-strongly agree) and in terms of how the participants felt right now.

Participants assigned to the favouritism condition then completed a measure of in-group favouritism. In-group favouritism was assessed using 20 pairs of *9-point trait-ratings* scales. Seven of the traits used were based on those described in Oakes, Haslam, and Turner (1994) to depict commonly used stereotypes (i.e., *loud-soft-spoken, pushy-reticent, humble-arrogant, confident-shy, aggressive-non-aggressive, ignorant-well informed, straight forward-hypocritical*). The remaining thirteen traits were based on those reported in Platow, McClintock, and Liebrand (1990); *helpful-unhelpful, cooperative-competitive, honest-dishonest, intelligent-unintelligent, selfish-unselfish, strong-weak, flexible-rigid, manipulative-sincere, fair-unfair, warm-cold, friendly-unfriendly, consistent-inconsistent, trustworthy-untrustworthy*). Using these terms, women and men rated their respective in-group (i.e., women vs. men) and out-group (i.e., men vs. women). Responses were coded so that high scores reflected more positive evaluations.

Participants in the fairness condition completed the same trait rating scales as those in the favouritism condition except that they were required to rate their respective in-group (i.e., women/men) and out-group (i.e., men/women) equally. Thus, if the members of the in-group were rated as 6 (e.g., in terms of trustworthiness), the members of the out-group had to be rated as 6. Immediately following the completion of these tasks participants again completed the same SWLS as earlier (e.g., 'I am satisfied with my life').

3.1.2 Results

3.121 Preliminary Analyses.

Prior to analyses, data were manually checked for accuracy of entry, missing values, outliers, and assessed for meeting the assumptions of ANOVA. See Appendix F.1 for Study 1 skewness and kurtosis.

3.122 In-group Favouritism.

To assess each group's respective evaluations of in-group and out-group members (in the favouritism condition) a 2 (gender: women vs. men) x 2 (target group of evaluation: in-group vs. out-group) mixed model analysis of variance was conducted. Cell means are reported in Table 1.1 (male female in-group and out-group evaluations).

The first factor was between groups the second was within groups. Seven outliers were identified whereby extremely low ratings were given to outgroup members ($M = 58$). Their transformation following Tabachnick and Fidell's (2007) method (to the closest non-outlying values) had no meaningful impact on the findings. A main effect was found for target group of evaluation, F (1, 406) = 99.97, $p < .001$ $\eta_p^2 = .19$; and F (1, 406) = 103.91, $p <$ .001 $\eta_p^2 = .20$ when outliers are modified. Overall, there was a tendency for the in-group to be evaluated more positively than the out-group ($M = 157.59$, $SD = 23.45$ vs. $M = 141.42$, $SD = 23.16$). This effect was, however, qualified by the interaction found between gender and target group of evaluation, F (1, 406) = 19.67, $p < .001$, $\eta_p^2 = .19$. Planned comparisons conducted to examine this effect further revealed that both women ($M = 162.37$, $SD = 26.33$ vs $M = 139.02$, $SD = 23.19$), t (200) = 9.56, $p < .001$, $\eta_p^2 = .19$) and men ($M = 152.81$, $SD =$ 20.57 vs $M = 143.81$, $SD = 23.13$), t (206) = 4.22, $p < .001$, $\eta_p^2 = .08$) evaluated in-group members more positively than out-group members. Women however tended to show over twice as much differentiation as did men ($M = 23.35$ vs. $M = 9.00$).

Table 1.1.

In-group and Out-group Evaluations in Study 1

	In-group Ratings		Out-group Ratings	
Group	M	SD	M	SD
Women	162.37	26.33	139.02	23.19
Men	152.81	20.57	143.81	23.13
Total	157.59	23.45	141.42	23.16

Note. Evaluations are on a scale of 1-9 for 20 sets. These are summed for each participant's evaluations. Total possible positive score is 180 if participants allocate the highest score for each evaluation presented.

3.123 Subjective Well-being.

To assess women and men's well-being scores at time 1 and time 2, a 2 (gender: women vs men) x 2 (type of evaluative task: in-group favouritism vs, fairness) x 2 (time of well-being measurement: time 1 to time 2) mixed model analysis of variance was conducted Cell means can be seen in table 1.2 – male and female time1 and time 2 well-being. The first two factors were between groups the second was within groups. A main effect was found for time of well-being measurement, F (1, 810) = 17.47, $p < .001$, $\eta_p^2 = .02$. Overall, there was a tendency for well-being to increase from time 1 to time 2, (M = 19.26, SD = 7.33 vs. M = 19.60, SD = 7.68). This effect was, however, qualified by the expected interaction found between type of evaluative task and time of well-being measurement, F (1, 810) = 3.73, p = .053, $\eta_p^2 = .01$. Planned comparisons, conducted to examine this effect further, revealed that those given the opportunity to show in-group favouritism reported an increase in well-being from time 1 to time 2 (M = 18.93, SD = 7.19 vs. M = 19.41, SD = 7.61), t (207) = 4.51, $p <$ .001, $\eta_p^2 = .05$. No effect was found for those forced to show fairness (M = 19.60, SD = 7.46 vs. M = 19.78, SD = 7.75), t (206) = 1.53, p = .128). A three-way interaction approaching significance between gender, type of evaluative task and time of well-being measurement was also found, F (1, 810) = 3.28, $p = .070$, $\eta_p^2 = .004$. Planned comparisons conducted to assess

this effect further revealed that both women (M = 19.29, SD = 7.67 to M = 19.92, SD = 8.08), t (200) = 4.16, $p < .001$, and men (M = 18.58, SD = 6.69, M = 18.93, SD = 2.26), t (206) = 2.26, p = .025, who showed in-group favouritism reported increased well-being. No effects were found for women (M = 20.12, SD = 7.43 to M = 20.45, SD = 7.63), t (200) = 1.76, p = .079, and men (M = 19.07, SD = 7.46, SD = 19.10, SD = 7.83), t (209) = .21, p = .836, forced to show fairness.

Table 1.2.

Well-being Scores Following Favouritism in Study 1

	Well-being Time 1		Well-being Time 2	
Condition	M	SD	M	SD
Favouritism	18.93	7.91	19.41	7.61
Fairness	19.60	7.46	19.78	7.75
Total	19.26	7.33	19.60	7.68

Note. Well-being Time 1 and Time 2 measured using Satisfaction With Life Scale (SWLS) by Diener, Emmons, Larsen, and Griffin (1985). Scores are on a scale of 1-7 for 5 questions. Lowest possible score is 5, and highest possible 35.

3.124 Well-being and in-group favouritism in the favouritism condition.

To assess the association between well-being and in-group favouritism we first created an index of in-group favouritism, after other researchers in the area (Hinkle & Brown, 1990: Hunter et al. 2004; Hunter et al. 2017). We did this by subtracting out-group ratings from in-group ratings. We then conducted a series of partial correlations to assess the association between time 1 and time 2 well-being and in-group favouritism. This analysis revealed a *negative* correlation between time 1 well-being and in-group favouritism for both women, r = -.19, p = .008, and men, r = -.17, p = .014, and a *positive* correlation between in-group favouritism and time 2 well-being for both women, r = .17, p = .017, and men, r = .14, p = .044. Subsequent analyses using Fisher's r to z transformation revealed that there were no

differences in the extent to which women and men's well-being at time 1 was associated with in-group favouritism ($z = .286$, $p = .387$) and the extent to which women and men's in-group favouritism was associated with time 2 well-being ($z = .206$, $p = .418$). As a result, and to simplify our results, we subsequently combined women and men's well-being and in-group favouritism scores before then doing an omnibus series of partial correlations. These analyses revealed (a) well-being at time 1 was negatively associated with in-group favouritism (when well-being at time 2 was controlled), $r = -.19$, $p < .001$, and (b) in-group favouritism was positively associated with well-being at time 2 (when controlling for well-being at time 1), $r =. 16$, $p = .001$. Taken together these finding indicate that lower well-being promotes in-group favouritism and, that in-group favouritism promotes increased well-being. These effects were identical for women and men.

3.1.3 Discussion

Two hypotheses were tested in this study. The first stated that high levels of baseline subjective well-being would be associated with lower in-group favouritism. The second stated that the display of in-group favouritism would lead to elevated well-being. Support was found for both hypotheses. Women and men with higher levels of baseline well-being showed less in-group favouritism, and women and men who showed in-group favouritism reported increased levels of well-being. No effects were found for participants who were constrained to show fairness. Partial correlation revealed that (a) high levels of well-being were associated with lower levels of in-group favouritism and (b) greater levels of in-group favouritism were associated with increased well-being. Taken together these findings suggest that lower well-being (at least amongst women and men) promotes in-group favouritism, and the display of such in-group favouritism can promote well-being.

Whilst such findings support the hypotheses, the findings from study 1 are limited in two important ways. The first relates to the fact that participants' levels of well-being and patterns of in-group favouritism were assessed in circumstances that were largely devoid of

threat. This is problematic because there is a growing body of literature that show that threats have been found to promote diverse forms of in-group favouritism (see Hunter et al. 2017; Leonardelli et al. 2010; Gomez et al., 2011), and negatively impact on psychological needs such as self-esteem, belonging, control and meaning (Haslam, 2017; Moradi et al., 2019; Williams, 2009). Thus, it remains to be seen whether the links between in-group favouritism and well-being reported in study 1 can be replicated in contexts where people feel threatened.

The second relates to the fact in study 1, there was a focus on groups comprised of men and women. Such groups are of course crucial to many aspects of human social behaviour (see Brown, 2010). Nevertheless, gender groups of this sort are imbued with long and complex histories, which draw on status differences, on-going conflict, personal experiences, norms and values. These variables have been repeatedly found to impact both in-group favouritism and well-being (e.g., Gimenez, 2005; Kristof, 2009; Lutwak, 2013; MacNeill, 1972; Mandell, 2015; Nelson & Lund, 2017; Smith, 2015; Snow, 2002; White & Dumont, 2012; William, 2009). Thus, it remains to be seen if the relationship between well-being and in-group favouritism found in Study 1 remains when many of the usual variables found to impact these outcomes are controlled (Brown & Pehrson, 2020).

In an attempt to redress these issues a second study was conducted. In this study participants were assigned to minimal or artificial groups formed using arbitrary criteria (e.g., a supposed preference for the abstract art of Paul Klee). Following this we sought to assess the extent to which high and low levels of well-being affected the extent to which threat (manipulated via cyberball ostracism) impacted on psychological needs and the display of in-group favouritism. Three hypotheses were tested. The first stated that ostracised (as opposed to included) participants would show greater levels of in-group favouritism. The second stated that high levels of subjective well-being would be associated with reduced in-group favouritism amongst those who were ostracised. The third stated that high levels of

subjective well-being would be associated with less threatened needs (i.e., self-esteem, belonging, control and meaning) amongst those who were ostracised.

3.2 Study 2: In-Group Favouritism in the Minimal Group Paradigm

Study 1 revealed that women and men with high levels of baseline well-being showed less pronounced patterns of in-group favouritism (and that the subsequent display of in-group favouritism led to increased well-being). Broadly speaking, the former findings are consistent with the ideas articulated by Dovidio and colleagues (e.g., Dovidio et al., 1995), which suggest that when people experience feelings of well-being and positive emotions they are less likely to show prejudice. Whilst such findings are clearly encouraging, and provide a useful starting point from which we can begin to assess the relationship between well-being and in-group favouritism, we did not attempt to incorporate threat into study 1. Thus, we were unable to test the idea, derived from Fredrickson's Broaden and Build Theory, that well-being serves to reduce the effects of stressful or threatening experiences (Fredrickson, 2001).

In study 2, we sought to redress this issue in the context of an ostracism manipulation carried out on participants assigned to minimal groups. There is a wealth of evidence to show that for many people ostracism (via cyberball) is threatening (Williams, 2009; Zadro et al. 2004). Research suggests that it affects some of the physical pain centres in the brain (see Eisenberger, 2015), leads to negative affect and substantially undermines core psychological needs like self-esteem, belonging, control and meaning (Harris, 2019; Williams, Hales & Michels, 2019). Moreover, these effects emerge regardless of whether one wants to belong to the ostracising group, the ostracism is randomly generated from a computer or inclusion results in penalties (Williams, 2007). As a result, many have concluded that people are hardwired to pick up on the threat of exclusion and will respond to the most minimal of cues of ostracism (Leary, 2010; McDonald & Leary, 2005; Lockenoff, Cook, Anderson, & Zayas, 2013).

In addition to such evidence there is a growing body of research to indicate that when people are ostracised or otherwise excluded they often respond negatively. Indeed, both case studies and experimental evidence reveal that individuals in such circumstances are prone to engage in extreme violence (Leary et al. 2003), interpersonal aggression (Twenge & Baumeister, 2001) or develop what has been referred to as a 'terrorist mindset' (Pfundmair, 2018). A number of studies have additionally shown that exclusion and marginalisation often result in elevated forms of prejudice (Greitemeyer, 2012), discrimination (Nesdale et al., 2010), and category-based hostility (Gaertner, Iuzzini, & O'Mara, 2008). These effects have been replicated in two studies that have explicitly examined the effects of cyberball ostracism on distinct forms of in-group favouritism. Research conducted by Williams and his colleagues demonstrating that cyberball ostracism led to elevated patterns of implicit in-group favouritism and out-group discrimination (Schaafsma & Williams, 2012; Williams, Case & Govan, 2003).

Despite such findings, it is clear that in-group favoritism and responses to ostracism may be affected by a host of additional factors (e.g., group norms, the public nature of prejudice) that are typically bound up in the everyday relations between real social groups (Brown, 2010; Jetten et al. 2002; Noel, Branscombe & Wann, 1995; Fahey, Hunter, Ruffman & Scarf, 2019). For this reason, we sought to test our ideas in the context of the minimal group paradigm.

Groups in such circumstances tend to be formed using arbitrary criteria (e.g., the toss of a coin or a supposed preference for abstract art). Face-to-face interaction with in-group or out-group members does not occur. Moreover, the groups involved are not distinguished through power or status differences and there is no history of conflict between groups. As such many of the factors that typically impact on intergroup behavior are removed. In spite of this, decades of research show that people tend to identify with and show in-group favoritism with respect to minimal groups (Brown 2010; Brown & Pehrson, 2020). The consequence of this

is, that such groups are ideal for the purposes of testing specific hypotheses by means of an unconfounded methodology. In the following study we tested three such hypotheses. The first stated that ostracised (as opposed to included) participants would show greater levels of in-group favouritism. The second stated that high levels of subjective well-being would be associated with reduced in-group favouritism amongst those who were ostracised. The third stated that high levels of subjective well-being would be associated with less threatened needs (i.e., higher levels of self-esteem, belonging, control and meaning) amongst those who were ostracised.

3.2.1 Method

3.211 Participants.

Three hundred and thirty-nine 1st and 2nd year psychology students attending the University of Otago took part in this study. Students signed up online, and received instructions to a time and place to attend the experiment. All received course credit for their participation. Data from 117 participants were excluded because they had either taken part in similar studies (n = 98), or failed to acknowledge that they belonged to the Klee group (n= 19). The removal of these participants did not alter the results. The final sample comprised 222 participants (50 males and 172 females). This sample size was considered acceptable for analyses in light of a recent review of cyberball outcomes which revealed that the average ostracism effect size is generally large, $d > 1.4$ (Hartgerink et al., 2015). Nevertheless, a post hoc G-Power analysis using G*Power3 (Faul, Erdfelder, Lang, & Buchner, 2007) for ANOVA ($n = 222$, and six independent groups), using a two-tailed test (effect size, $f = 0.19$), revealed 95% power. This suggests that the sample size was sufficient to detect a small to medium effect.

3.212 Design.

The baseline well-being scores of all those who took part was initially assessed. Participants then completed the Klee and Kandinsky variant of the minimal group procedure.

Following these participants were randomly assigned to 1 of 6 cyberball feedback conditions so that participants' progressive inclusion and ostracism either began or ended at the points of partial inclusion, over-inclusion and average inclusion. Thus, in the first progressive inclusion condition participants started from a point of partial inclusion and progressed up to average inclusion (n = 48). In the first progressive ostracism condition, participants started from a point of average inclusion and progressed down to partial inclusion (n = 52). In the second progressive inclusion condition, participants started from a point of over-inclusion and progressed up to a point of total inclusion (n = 29). In the second progressive ostracism condition, participants started from a point of total inclusion and went down to a point of over-inclusion (n = 39). In the third progressive inclusion, participants started from a point of average inclusion and went up to total inclusion (n = 28). In the third progressive ostracism participants started at a point of total inclusion and went down to a point of average inclusion (n = 26). Belonging, self-esteem, control, meaning and in-group favouritism were then assessed.

3.213 Materials and procedure.

The study was conducted in a laboratory at the University of Otago. Participants were tested in groups of 8. The study was introduced as being concerned with imagination and social decisions and that taking part would involve the completion of a number of questionnaires, a group preference choice, a game of cyberball that would require some imagination and then some social decision tasks. Each participant was directed to sit at a computer and instructed to wear headphones (which would be relevant for the later decision tasks). Participants then followed the on-screen instructions and prompts to proceed with the experiment. There were four sections in the experiment that were completed in sequence.

Part 1.

In the first section of the experiment participants completed a measure of baseline well-being assessed using an adapted version of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS). The WEBWBS was developed by researchers at the Universities of Warwick and Edinburgh (NHS Health Scotland, 2016). The adaptation involved rephrasing of questions from past tense to present tense. The scale comprised 14 items ($\alpha = .87$, n= 222). Participants rated statements such as 'I feel optimistic about the future', 'I feel useful', 'I feel relaxed', and 'I feel good about myself'. Responses were scored on a 5-point Likert Scale (none of the time -1 to 5- all of the time). The total score on the WEMWBS is obtained by summing up the scores of the 14 items, with total possible scores of 14 -70 (NHS Health Scotland, 2016). Two other well-being measures were included – the Kessler 10 Psychological Distress Scale (The K10) that is a measure of psychological distress (Sunderland, Mahoney, & Andrews, 2012), and the Flourishing Scale developed by (Diener, 2009a), but these did not present any significant differences in the measure of the construct. Therefore, for brevity and ease of presentation, their analyses are presented in Appendix D.5

Part 2.

The second section of the experiment began with the presentation of the Klee and Kandinsky variant of the minimal group procedure developed by Tajfel, Billig, Bundy, and Flament (1971). Using this technique participants were presented with 8 pairs of paintings by two abstract artists, Paul Klee and Vassilij Kandinsky and asked for their preference. Following this, and regardless of their actual preference, all participants were then informed (via computer) that they tended to prefer the paintings by Klee and as such were put into the Klee group.

Immediately following group assignment, participants were introduced to the cyberball game. Cyberball has been widely used to induce ostracism (Wiliams, 2009; Williams and Jarvis, 2006). It was explained that this part of the study required them to

undertake some 'mental visualization tasks' wherein they, along with three others from the Klee group, would take part in a game of Cyberball (supposedly accessed and played via the internet). After ostensibly setting the game up and linking the participants with the three people with whom they would supposedly play, it was emphasized (in both text and verbally) that the outcome of the game was completely irrelevant. It was, as explained in the words of Zadro and colleagues, simply a method 'by which they could practice their mental visualization skills' (Zadro et al., 2004, p. 561). To emphasize this point, as they played, participants were instructed to 'visualize the game, the situation, themselves and the other players' (Zadro et al., p. 561). The mental visualization instruction is a cover story intended to have the participants believe that the ball tossing game is by itself unimportant for the experiment (Williams & Jarvis, 2006).

The game depicted four animated icons. One of these was identified as the participant (i.e., player from the Klee group). The other icons depicted three in-group members (player H, player B and player D, all from the Klee group). It was explained that when the cyberball was passed to the participant, they could pass it to any of the other participants by clicking on that participant's respective icon (after the click, the Cyberball moved to the participant in question). Each participant played four rounds of the game. Each round comprised 16 throws in total (and lasted just over two minutes). There were six cyberball conditions. Following the progressive ostracism and inclusion method developed by Lockenhoff et al. (2013) to examine the severity of distinct forms of ostracism, 3 were modified to assess different levels of progressive ostracism, and three were set to assess different levels of progressive inclusion. Participants assigned to the first progressive inclusion condition (i.e., from partial inclusion to average inclusion), received 2 balls in the first round, 3 in the second, 3 on the third, and 4 in the fourth round (hereafter sequence 2,3,3,4). Participants assigned to the first progressive ostracism condition (i.e., from average inclusion to partial inclusion), received 4 balls in the first round, 3 in the second, 3 in the third, and 2 in the fourth round (hereafter sequence

4,3,3,2). In the second progressive inclusion condition (i.e., from over inclusion to total inclusion), participants received 6 balls in the first round, 7 in the second, 7 in the third, and 8 in the fourth round (hereafter sequence 6,7,7,8). In the second progressive ostracism (i.e., from total inclusion to over inclusion), participants received 8 balls in the first round, 7 in the second, 7 in the third, and 6 in the fourth round (8,7,7,6). Participants assigned to the third progressive inclusion condition (i.e., from average inclusion to total inclusion), received 4 balls in the first round, 6 in the second, 7 in the third, and 8 in the fourth round (hereafter sequence 4,6,7,8). In the third progressive ostracism condition (i.e., from total inclusion to average inclusion) participants received 8 balls in the first round, 7 in the second, 6 in the third, and 4 in the fourth round (hereafter sequence 8,7,6,4).

Part 3.

Immediately following the cyberball manipulation, participants completed the 20-item Psychological Needs Scale by Williams (2009), $\alpha = .89$. The scale comprises 4, 5-item subscales that assess belonging (I feel that I belong with the others', I feel like an outsider' $\alpha = .78$, n= 222), esteem (I feel that I somehow failed', I am as valuable as the other people($\alpha = .81$), control ('I felt in control, 'I affected the course of things $\alpha = .54$), and meaningful existence (My participation was useful', 'My presence was important $\alpha = .87$). Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree), with negative items reverse-coded. Control scores in this study are to be interpreted with caution following the low $\alpha = .54$.

Part 4.

The fourth and final section of the experiment comprised two measures of in-group favouritism. The first was assessed using twelve 13-choice distribution matrices (see Figure 1). The numerical values typically used to denote 'points' in each set of matrices were substituted to represent times (in seconds) that were to be spent listening to white noise. To ensure participants were aware of the nature of the sound of white noise, all were given a 10-

second sample blast via headphones. After the A, B and C type matrices outlined by Bourhis, Sachdev, and Gagnon (1994, p. 212), these matrices gave participants the opportunity to allocate more white noise to the Kandinsky out-group than the Klee in-group (i.e., display in-group favouritism), equal amounts of white noise to in-group and out-group members (i.e., display parity or fairness), or allocate more white noise to the Klee in-group than the Kandinsky out-group (i.e., display out-group favouritism). In keeping with other researchers who have utilised these matrices (Hunter et al. 2005; Hunter et al. 2017), we used the difference in the overall amount of white noise allocated to in-group and out-group members, to measure in-group favouritism. See Fig.1 for sample white noise allocation matrices.

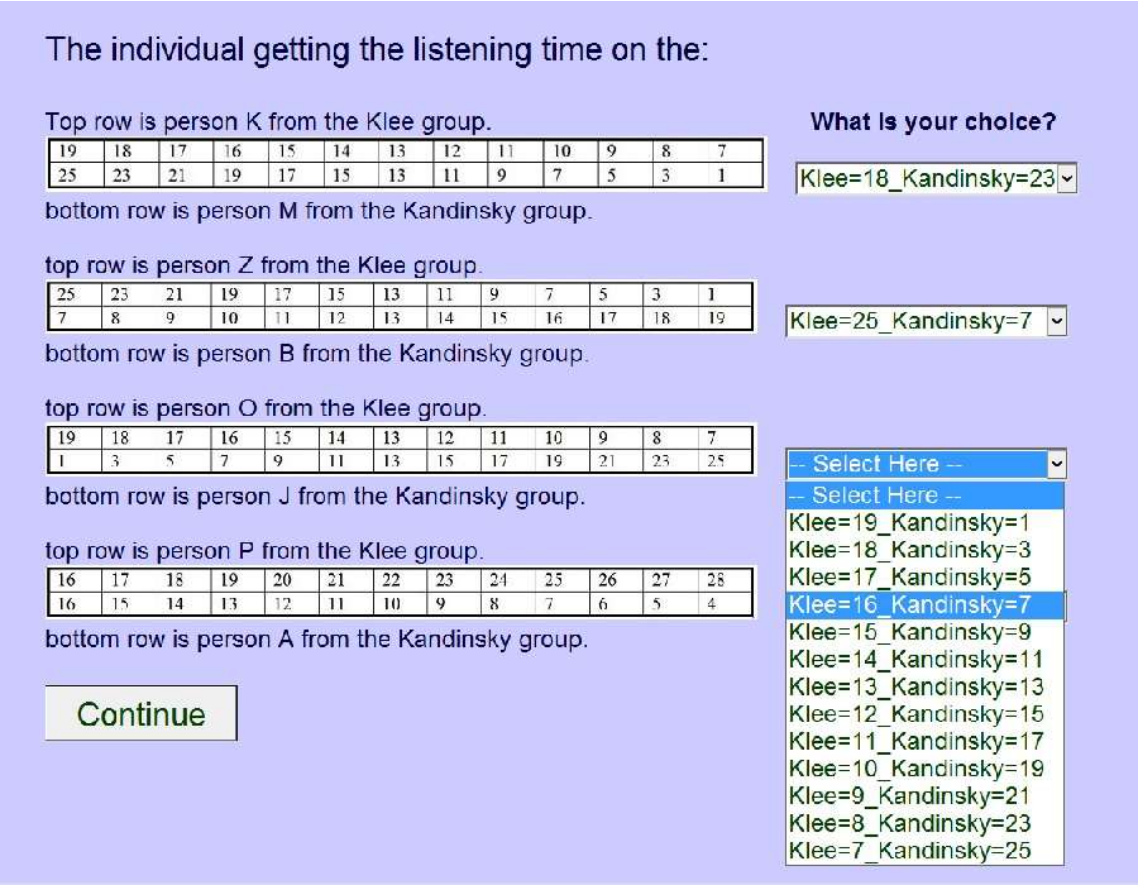


Figure 1. Sample White Noise Allocation Matrix for Study 2.

The second measure of in-group favouritism comprised the same 20 pairs of *9-point trait-ratings* scales used in Study 1. In-group favouritism was assessed using 20 pairs of *9-point trait-ratings* scales. Seven of the traits used were based on those described in Oakes, Haslam, and Turner (1994) to depict commonly used stereotypes (i.e., *loud-soft-spoken, pushy-reticent, humble-arrogant, confident-shy, aggressive-non-aggressive, ignorant-well informed, straight forward-hypocritical*). The remaining thirteen traits were based on those reported in Platow, McClintock, and Liebrand (1990); *helpful-unhelpful, cooperative-competitive, honest-dishonest, intelligent-unintelligent, selfish-unselfish, strong-weak, flexible-rigid, manipulative-sincere, fair-unfair, warm-cold, friendly-unfriendly, consistent-inconsistent, trustworthy-untrustworthy*). Using these terms, participants rated the Klee in-group and the Kandinsky out-group. Responses were coded so that high scores reflected more positive evaluations.

In the final section of the study participants completed a series of manipulation check questions. Here participants were asked if they had (a) previously taken part in similar experiment, (b) if they had been assigned to the Klee or Kandinsky group, (c) how included and (d) how excluded they felt during the cyberball game. Responses to the latter questions were recorded on 9-point Likert Scales (not at all -1 to 9- a lot).

Upon completion, each participant was thanked for their participation and debriefed. Particular attention was paid to those who were ostracized. These participants were informed that the ball tossing game was pre-programmed to various levels of inclusion/exclusion, and that it was not real people who had included or excluded them. It was also explained to all participants that most people find even mild forms of exclusion such as that elicited virtual ball tossing upsetting, but that people are known to recover from this within a few minutes of playing the game (Williams, 2009). Each participant received a handout on the experiment for informational purposes, with the aim of encouraging interest in further research and in psychology.

3.2.2 Results

3.221 Preliminary Analyses.

Prior to analyses, data were manually checked for accuracy of entry, missing values, and assessed for meeting the assumptions of ANOVA. See Appendix F.2 for skewness and kurtosis.

3.222 Manipulation Checks.

Perceived exclusion: To assess how the various cyberball manipulations affected perceived exclusion across the respective inclusion and ostracism conditions – we conducted a one-way ANOVA contrasting means across the first progressive inclusion (ball receipt sequence 2,3,3,4), the second progressive inclusion (ball receipt sequence 6,7,7,8), the third progressive inclusion (ball receipt sequence 4,6,7,8), the first progressive ostracism (ball receipt sequence 4,3,3,2), the second progressive ostracism (8,7,7,6), and the third progressive ostracism conditions (ball receipt sequence 8,7,6,4). A main effect was found, F (5, 216) = 10.04.36, $p < .001$, $\eta_p^{2 =}$ 0.19. See Fig 2. for perceived exclusion means across conditions.

Planned comparisons using Bonferroni – Holm conducted to assess this effect further revealed that perceived exclusion for participants in the first progressive inclusion condition (2,3,3,4), (M = 5.58, SD = 2.05) was higher than that in the first progressive ostracism condition (4,3,3,2) (M = 4.11, SD = 2.26), $t(98) = 3.41$, $p = .001$; the second progressive inclusion condition (6,7,7,8), (M = 2.05, SD = 2.18), $t(76) = 5.13$, $p < .001$, the second progressive ostracism condition (8,7,7,6), (M = 2.75, SD = 1.94), $t(78) = 5.99$, $p < .001$, the third progressive inclusion condition (4,6,7,8), (M = 3.54, SD = 2.14), $t(89) = 4.61$, $p < .001$, and the third progressive ostracism condition (8,7,6,4), (M = 3.14, SD = 2.18), $t(79) = 5.01$, $p < .001$. All other conditions did not differ significantly from one another, (all ps > .070). Overall, these findings indicate that participants in the progressive inclusion (2,3,3,4) condition felt most excluded, while those in the second progressive ostracism condition (8, 7,

7, 6) felt the least excluded (M = 5.58 vs. M = 2.75). See Fig 2 for mean perceived exclusion across conditions for Study 2.

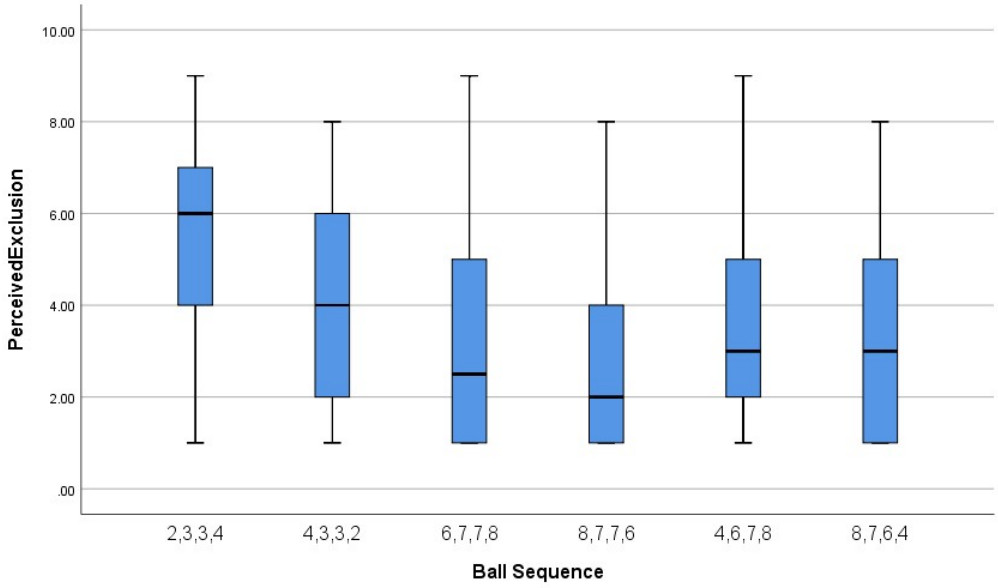


Figure 2. Mean Perceived Exclusion across Conditions for Study 2.

Perceived inclusion: We conducted a one-way ANOVA contrasting means across the first progressive inclusion (ball receipt sequence 2,3,3,4), the second progressive inclusion (ball receipt sequence 6,7,7,8), the third progressive inclusion (ball receipt sequence 4,6,7,8), the first progressive exclusion (ball receipt sequence 4,3,3,2), the second progressive exclusion (8,7,7,6), and the third progressive ostracism conditions (ball receipt sequence 8,7,6,4). A main effect was found, F (5, 216) = 4.06, p < .001, $\eta_p^{2 =}$ 0.086.

Planned comparisons indicated that perceived inclusion for participants in the first progressive inclusion (2,3,3,4) condition (M = 4.19 SD = 1.41) was lower than that in the second progressive inclusion condition (6,7,7,8), (M = 5.31 = SD = 0.84), t(76) = -4.06, p < .001, and the third progressive inclusion condition (4,6,7,8), (M = 4.74 SD = 1.02), t(89) = -2.16, p = .033. The latter effect failed to remain significant with application of Bonferroni –

Holm (critical alpha = 1.83). All other conditions did not differ significantly from one another, (all *p*s > .24. Overall, these findings indicate that participants in the first progressive inclusion (2, 3, 3, 4) condition felt least included (M = 4.19 SD = 1.41), while those in the second progressive inclusion (6, 7, 7, 8) condition felt the most included (M = 5.31 = SD = 0.84).

3.223 In-group Favouritism.

White noise allocations: In order to assess the amount of white noise allocated to in-group and out-group members as a function of high and low well-being and cyberball feedback we conducted a 2 (well-being: high vs. low) x 2 (cyberball feedback: progressive inclusion vs. progressive ostracism) x 3 (cyberball range: partial to average inclusion vs. over included to total included, vs. over included to average) x 2 (target: in-group vs. out-group) mixed model ANOVA. The first three factors were between groups. The last factor was within groups. Three outliers were identified whereby extremely low white noise was given to the in-group (M = 72), and one outlier whereby extremely low white noise was given to the outgroup, (92). Their transformation following Tabachnick and Fidell's (2007) method (to the closest non-outlying values) had no meaningful impact on the findings. The only significant effect to emerge was found for well-being, F (1, 210) = 7.32, p = .007, $\eta_p^{2 =}$ 0.03; and F (1, 210) = 7.35, p = .007, $\eta_p^{2 =}$ 0.03 when outliers are modified. Those with lower well-being tended to allocate more white noise overall than did those with higher well-being (M = 316.5, SD = 21.07 vs. M = 305.07, SD = 29.95). See Table 2.1 for mean white noise allocation across the conditions in Study 2.

Table 2.1.

In-group and Out-group White Noise Allocation in Study 2 across Conditions

	In-group Noise		Out-group Noise	
Ball Sequence	M	SD	M	SD
2,3,3,4	150.71	29.88	156.17	20.32
4,3,3,2	149.21	25.70	152.67	20.06
6,7,7,8	164.00	26.13	150.42	19.11
8,7,7,6	161.57	21.10	153.93	16.04
4,6,7,8	161.15	23.33	152.33	18.24
8,7,6,4	159.41	29.74	160.10	15.59
Total	156.28	26.88	154.30	18.70

Note. Noise allocation represents sum of noise selections by each participant for 13 sets of matrices. See Appendix C for sample matrices. Total possible noise allocation time is 338 seconds if participants allocated highest level for each matrix they were presented with.

Evaluations: A 2 (well-being: high vs. low) x 2 (cyberball feedback: progressive inclusion vs. progressive ostracism) x 3 (cyberball range: partial to average inclusion vs. over included to total included, vs. over included to average) x 2 (target: in-group vs. out-group) mixed model ANOVA was conducted. The first three factors were between groups. The last factor was within groups. Two outliers were identified whereby extremely low evaluations were given to outgroup members ($M = 39$), and one outlier whereby an extremely low evaluation was given to the in-group, (48). Their transformation following Tabachnick and Fidell's (2007) method (to the closest non-outlying values) had no meaningful impact on the findings. A main effect was found for target group, $F\ (1, 210) = 35.87$, $p < 0.001$, $\eta_p^{2\,=}\ 0.15$; and $F\ (1, 210) = 37.67$, $p < 0.001$, $\eta_p^{2\,=}\ 0.15$ when outliers are modified. There was a tendency for in-group members to be evaluated more positively than out-group members ($M = 116.02$, $SD = 20.31$ vs. $M = 107.89$, $SD = 18.15$). Cell means can be seen on Table 2.2.

An interaction approaching significance was found between target group and well-being, $F\ (1, 220) = 2.84$, $p = .094$, $\eta_p^{2\,=}\ 0.013$. Planned comparisons using t-tests to assess this

effect further revealed that participants with both low (M = 114.02, SD = 16.72 vs. M = 108.43, SD 15.65), t (116) = 3.45, p <. 001, and high levels (M = 117.88, SD = 23.08 vs. M = 107.90, SD = 20.25), t (115) = 4.12, p < .001 of well-being showed in-group favouritism. However, participants in the high well-being category showed almost twice as much differentiation (M = 10.48 vs. M = 5.59). Cell means can be seen on Table 2.3.

Table 2.2.

In-group and Out-group Evaluations in Study 2

	In-group Ratings		Out-group Ratings	
Ball Sequence	M	SD	M	SD
2,3,3,4	116.25	21.08	107.46	16.75
4,3,3,2	114.35	19.54	108.44	17.11
6,7,7,8	123.85	21.37	114.54	18.94
8,7,7,6	109.21	15.72	101.46	12.77
4,6,7,8	116.54	19.47	107.18	17.17
8,7,6,4	117.21	23.14	109.00	25.19
Total	116.02	20.31	107.90	18.15

Note. Evaluations are on a scale of 1-9 for 20 sets. These are summed for each participant's evaluations. Total possible positive score is 180 if participants allocates the highest score for each evaluation presented.

Table 2.3.

High and Low Well-being In-group and Out-group Evaluations in Study 2

	In-group Evaluations		Out-group Evaluations	
Participant Well-being	M	SD	M	SD
Low	114.02	16.71	108.43	15.65
High	117.88	23.08	107.40	20.25
Total	116.02	20.31	107.90	18.15

Note. Evaluations are on a scale of 1-9 for 20 sets. These are summed for each participant's evaluations. Total possible positive score is 180 if participants allocates the highest score for each evaluation presented.

3.224 Threatened Psychological Needs.

In order to examine how well-being, cyberball feedback and cyberball range affected the composite four needs a 2 (well-being: high vs. low) x 2 (cyberball feedback: progressive inclusion vs. progressive ostracism) x 3 (cyberball range: partial to average vs. over to total, vs. over to average) x 2 (target: in-group vs. out-group) mixed model ANOVA was conducted. The first three factors were between groups. The last factor was within groups. See Table 2.4 for mean psychological needs satisfaction across the conditions, where lower scores are an indication of higher threat

A main effect was found for cyberball range, F (2, 210) = 9.15, $p < 0.001$, $\eta_p^{2 =}$ 0.02. Planned comparisons to assess this effect revealed that those who received cyberball feedback in the partial to average range (M = 82.72, SD = 17.61) reported lower scores than did those in the overall to total range (M = 89.07, SD = 12.37), t (166) = 2.57, p = 0.015, and overall to average range (M = 90.44, SD = 12.02), t (152) = 2.89, p = .005. The only other effect to emerge was a main effect for well-being, F (1, 210) = 14.99, $p <$. 001, $\eta_p^{2 =}$ 0.08. Planned comparisons revealed that those with- higher well-being scored higher on the composite need measure (M = 90.13, SD = 15.33) vs. M = 83.38, SD = 14.2).

Further analyses planned comparisons to compare composite need scores across all conditions found only one effect. Those in the first progressive inclusion condition (with the ball sequence 2, 3, 3, 4) had significantly higher threat to their psychological needs (M = 79.15, SD = 17.95) than those in the third (M = 88.80, SD = 12.49) t (89) = 2.87, p = 0.005) overinclusion progressive inclusion condition (with the ball sequence 4, 6, 7, 8). All other conditions did not differ significantly from one another in terms of threat to participant psychological needs.

Table 2.4.

Mean Psychological Needs Satisfaction across Conditions in Study 2

Ball Sequence	M	SD
2,3,3,4	79.15	17.95
4,3,3,2	86.58	16.58
6,7,7,8	92.85	12.57
8,7,7,6	88.21	11.27
4,6,7,8	88.80	12.49
8,7,6,4	89.44	12.43

Note. Psychological needs satisfaction measured using the 20 item Psychological Needs Scale by Williams (2009) that comprises 4, 5-item subscales for belonging, esteem, control and meaningful existence, with a total possible score of 35 for each subscale, and total possible composite score of 140. Higher scores represent higher needs satisfaction. Lower scores represent higher psychological threat.

Belonging, Esteem, Control and Meaningful Existence. In order to examine how well-being, cyberball feedback and cyberball range affected belonging, esteem, control and meaningful existence a 2 (well-being: high vs. low) x 2 (cyberball feedback: progressive inclusion vs. progressive ostracism) x 3 (cyberball range: partial to average vs. over to total, vs. over to average) x 2 (target: in-group vs. out-group) mixed model MANOVA was conducted. The first three factors were between groups. The last factor was within groups. Main effects for cyberball range were on belonging, F (2, 210) = 6.65, p = .002, $\eta_p^2 =$ 0.06, esteem F (2, 210) = 3.36, p = .028, $\eta_p^2 =$ 0.03, control, F (2, 210) = 6.80, p = .003, $\eta_p^2 =$ 0.06, meaningful existence, F (2, 210) = 5.55, p = .004, $\eta_p^2 =$ 0.05. Post hoc comparisons contrasting the belonging, esteem, control and meaningful existence scores across each of the three separate cyberball range conditions failed to find any significant effects when controlling for the familywise effort rate (critical alpha value = 2.81). Planned comparisons

comparing each need separately across each cyberball condition revealed only one significant effect. Those in the first progressive cyberball condition (i.e., sequence of 2, 3, 3, 4) experienced the highest threat to sense of belonging (M = 20.38, SD = 5.22) compared to those in the overinclusion sequence 4,6,7,8 progressive overinclusion ball tossing sequence 6,7,7,8 (M = 25.04, SD = 4.53) t (80) = -3.87, p < .001. All other conditions did not differ significantly from (critical alpha value = 2.81). Planned comparisons indicated no significant differences between the ball sequences in terms of threat to participant esteem, nor sense of control (critical alpha value = 3.10).

Main effects were also found for well-being with respect to belonging F (1, 210) = 10.81, p < .001, $\eta_p^2 =$ 0.049, esteem, F (1, 221) = 14.38 p < .001, $\eta_p^2 =$ 0.064, control, F (1, 210) = 6.17, p = .006, $\eta_p^2 =$ 0.029, and meaning, F (1, 210) = 65.98, p = .005, $\eta_p^2 =$ 0.013. Participants with lower levels of well-being also reported lower levels of belonging (M = 21.31, SD = 4.62 vs. M = 23.72, SD = 5.07), esteem (M = 19.05, SD = 4.45 vs. M = 21.52, SD = 4.38) control (M = 19.19, SD = 3.97 vs. M = 20.29, SD = 4.68), and meaning (M = 23.09, SD = 5.18 vs. M =24.65, SD = 5.49).

See Tables 2.5 and 2.6 with respect to correlations between the variables utilized in Study 2. Well-being at Time 1 (Wemwbs1) was, as expected significantly correlated with Well-being at Time 2 (Wemwbs2), r = .92, p < .01. There was significant correlation with Well-being at Time 1 and how included participants felt, but not how excluded they felt, r = .20, p < .01 and r = -.08. Both Well-being at Time 1 and Time 2 were significantly correlated with the four psychological needs of belonging, esteem, control and meaning, and Time 2 well-being more so (See Table). Both inclusion and exclusion were significantly correlated with the four psychological needs, and the four needs significantly correlated. These high correlations serve to support the rationale for linking psychological needs to well-being, and perceived inclusion and exclusion.

Well-being at Time 1 was significantly correlated to the noise given to the in-group $r = -.13$, $p < .05$ but not the noise given to the outgroup group $r = -.07$. How included participants felt was correlated with how they rated the in-group $r = .31$, $p < .01$ and the outgroup $r = .17$, $p < .05$. How excluded participants felt was also correlated with how they rated the in-group $r = -.13$, $p < .01$ and the outgroup $r = -.16$, $p < .05$.

Table 2.5.

Descriptive Statistics and Correlations for Study 2 Variables Set 1

Measure	M	SD	1	2	3	4	5	6	7
1. Wemwbs1	49.21	7.05							
2. Wemwbs2	49.66	7.09	.92**						
3. Included	4.59	1.17	.20**	.26**					
4. Excluded	3.92	2.34	-.08	-.15*	-.42**				
5. Belonging	22.56	4.99	.32**	.41**	.57**	-.39**			
6. Esteem	20.33	4.58	.39**	.46**	.37**	-.49**	.40**		
7. Control	19.76	4.38	.19**	.25**	.51**	-.34**	.52**	.30**	
8. MExist	23.90	5.39	.27**	.36**	.58**	-.43**	.63**	.57**	.50**

Note. Wemwbs1 = Well-being Time 1, Wemwbs2 = Well-being Time 2, Included/Excluded = Participant rating on how included/excluded they felt on a scale of 1-9, Belonging, Esteem, Control and Meaningful existence measured using 20 item Psychological Needs Scale by Williams (2009), comprises 4, 5-item subscales with a total possible score of 35 for each measure. MExist = Meaningful existence.
N = 222, **p <.01 *. P < .05*.

Table 2.6.

Descriptive Statistics and Correlations for Study 2 Variables Set 2

Measure	M	SD	1	2	3	4	5	6	7
1. Wemwbs1	49.21	7.05							
2. Wemwbs2	49.66	7.09	.92**						
3. Included	4.59	1.17	.20**	.26**					
4. Excluded	3.92	2.34	-.08	-.15*	-.42**				
5. InNoise	156.28	26.88	-.13*	-.12	.02	-.10			
6. OutNoise	154.30	18.70	-.07	-.08	.01	.08	-.20**		
7. InEval	116.02	20.31	.02	.05	.31**	-.13*	-.07	.10	
8. OutEval	107.90	18.15	-.04	-.01	.17*	-.16*	.25**	-.09	.40**

Note. Wemwbs1 = Well-being Time 1, Wemwbs2 = Well-being Time 2, Included/Excluded = Participant rating on how included/excluded they felt on a scale of 1-9, InNoise = Noise allocation to the in-group, OutNoise = Noise allocation to the out-group, InEval = In-group ratings/evaluation, OutEval = Out-group ratings/evaluations.
N = 222, **p <.01 *. P < .05*.

3.2.3 Discussion

In study 2 three hypotheses were tested. The first stated that ostracised (as opposed to included) participants would show greater levels of in-group favouritism. The second stated that high levels of subjective well-being would be associated with reduced in-group favouritism amongst those who were progressively ostracised. The third stated that high levels of subjective well-being would be associated with less threatened needs (i.e., higher levels of self-esteem, belonging, control and meaning) amongst those who were progressively ostracised.

None of the hypotheses were supported. In terms of the first hypothesis, no in-group favouritism was found with respect to the allocation of white noise to in-group and out-group members. In-group favouritism was shown with respect to in-group and out-group evaluations. This effect was, however unaffected by cyberball ostracism. In terms of the second hypothesis we found no evidence to suggest that progressively ostracised participants with high well-being showed less in-group favouritism. Participants with low well-being

tended to give more white noise overall. Further, in contrast to the findings reported in Study 1, those with higher well-being tended to show more in-group favouritism than did those with low well-being.

In terms of the third hypothesis no evidence was found to suggest that high levels of well-being would be associated with less threatened needs amongst those who were ostracised. Participants in the first progressive inclusion condition (ball sequence 2, 3, 3, 4) appeared to experience significantly higher threat to their psychological needs than those in in all other sequences. Moreover, these participants did not show more in-group favouritism with respect to the allocation of white noise or intergroup evaluations. Additionally, the respective pattern of favouritism in this condition was unaffected by levels of well-being. Thus, those who reported feeling threatened following exclusion did not show more in-group favouritism.

On the basis of previous research conducted by Lockenhoff et al. (2013) it was expected that those who were progressively ostracized should report higher exclusion levels than those who were progressively included. However, this outcome did not eventuate. Participants in the first progressive inclusion condition (i.e., those who received the 2,3,3,4 sequence) reported significantly higher perceived exclusion than those in the first progressive ostracism condition (i.e., those who received the 4,3,3,2 sequence).

One possible reason for this difference is that Lockenoff et al. assessed exclusion after each round of ostracism and inclusion, whereas in this study we assessed perceived ostracism and inclusion only after the final round of the game had been played. Participants in the current study reported perceived exclusion only after all four rounds of the game. Further, it was the initial low level of perceived exclusion, at least in the first progressive inclusion condition, that appears to have predicted perceived levels of exclusion. Perhaps it is one's initial experiences of ostracism, at least at the lower levels of inclusion, that is the primary determinate of perceptions of exclusion; and perhaps a primacy effect at play. Another

possibility however, with important ramifications for research in this area is that not all ostracism techniques are equally potent. It may be for example that, the progressive ostracism strategy used in the current study (e.g., where people receive the ball in say the sequence, 4, 3 3, 2) may not be as effective as constant ostracism strategy (e.g., where people receive the ball in say the sequence 2, 2, 2, 2). A third study was conducted to examine this possibility where we tested three hypotheses. The first suggested that constant ostracism as opposed to progressive ostracism would lead to greater levels of exclusion. The second stated that constant as opposed to progressive ostracism would lead to lower levels of perceived inclusion. The third stated that constant as opposed to progressive ostracism would have a greater impact on the four needs of belonging, control, self-esteem and meaning.

3.3 Study 3: Constant versus Progressive Exclusion

The findings from study 2 revealed (amongst other things) that participants in the first progressive inclusion condition (where the ball was received in the 2, 3, 3, 4, sequence) felt more excluded ($M = 5.58$) than participants in the first progressive ostracism ($M = 4.19$) condition (where the ball was received in the 4, 3, 3, 2 sequence). Such findings raise the possibility that not all ostracism techniques are equally impactful. It may be for example that progressive ostracism (at least as manipulated via cyberball) is not as potent an indicator of exclusion as is constant ostracism. In order to test this idea we conducted a 3rd study. In this study we tested three hypotheses. The first stated that constant ostracism would result in higher levels of perceived exclusion than progressive ostracism. The second stated that constant as opposed to progressive ostracism would lead to lower levels of perceived inclusion. The third stated that constant (as opposed to progressive) ostracism would result in higher threat to the psychological needs of belonging, esteem, control, and meaningful existence.

3.3.1 Method

3.311 Participants.

Two hundred participants took part in this this study. All were recruited through the online Prolific network, a research platform hosting a global pool of participants. Participants are pre-screened by the website to meet given study criteria such as language proficiency, college enrolment, etc. The study was presented as being concerned with social decisions and playing online games. Those proficient in the English language, and who were current of former students were sought. These selection criteria were in line with the demographics of Study 2, where participants were 1st and 2nd year University students. Each participant was paid NZ$ 15 for taking part. Data from 15 participants were excluded because they had taken part in similar studies. The final sample comprised 185 participants; 124 male, 59 female, and 2 people who did not identify with either gender (non-binary). As in study 2, final participant numbers were considered acceptable in light of Hartgerink et al.'s (2015) conclusion that the average ostracism effect size is generally large, $d > 1.4$. Nevertheless, a post hoc G-Power analysis using G*Power3 (Faul et al., 2007) for ANOVA ($n = 185$), with four independent groups, using a two-tailed test (effect size, $f = 0.26$), revealed 95% power. This suggests that the sample size was sufficient to detect a small to medium effect.

3.312 Design.

Participants were randomly assigned to 4 cyberball conditions: a constant ostracism condition, where participants received 2 balls in the first round, 2 in the second, 2 in the third, and 2 in the fourth round (hereafter sequence 2, 2, 2, 2, n = 50), a progressive ostracism condition, where participants received 4 balls in the first round, 3 in the second, 3 in the third, and 2 in the fourth round (hereafter sequence 4, 3, 3, 2, n = 44), a progressive inclusion condition where participants received 2 balls in the first round, 3 in the second, 3 in the third, and 4 in the fourth round (hereafter sequence 2, 3, 3, 4, n = 47), and a constant inclusion condition, where participants received 4 balls in the first round, 4 in the second, 4 in the third,

and 4 in the fourth round (hereafter sequence 4, 4, 4, 4, n = 44). The well-being of all participants was assessed prior (time 1) to and following (time 2) the inclusion/exclusion.

3.313 Materials and procedure.

This study used the same procedure utilized in Study2 with the exception that it was conducted online. Participants logged in on the prolific website, and once they selected to participate in the experiment they were directed to the experiment page. Participants then followed the on-screen instructions and prompts to proceed with the experiment.

The experiment utilized the minimal group paradigm and cyberball ostracism technique used in Study 2, with the exception of a difference in ball receipt sequences (See design). The section began with the presentation of the Klee and Kandinsky variant of the minimal group procedure developed by Tajfel, Billig, Bundy, and Flament (1971). Using this technique participants were presented with 8 pairs of paintings by two abstract artists, Paul Klee and Vassilij Kandinsky and asked for their preference. Following this, and regardless of their actual preference, all participants were then informed (via computer) that they tended to prefer the paintings by Klee and as such were put into the Klee group.

Immediately following group assignment, participants were introduced to the cyberball game. Cyberball has been widely used to induce ostracism (Wiliams, 2009; Williams and Jarvis, 2006). It was explained that this part of the study required them to undertake some ‘mental visualization tasks’ wherein they, along with three others from the Klee group, would take part in a game of Cyberball (supposedly accessed and played via the internet). After ostensibly setting the game up and linking the participants with the three people with whom they would supposedly play, it was emphasized by text in the words of Zadro and colleagues, that the game was simply a method ‘by which they could practice their mental visualization skills’ (Zadro et al., 2004, p. 561). To emphasize this point, as they played, participants were instructed to ‘visualize the game, the situation, themselves and the other players’ (Zadro et al., p. 561). The mental visualization instruction is a cover story

intended to have the participants believe that the ball tossing game is by itself unimportant for the experiment (Williams & Jarvis, 2006).

The game depicted four animated icons. One of these was identified as the participant (i.e., player from the Klee group). The other icons depicted three in-group members (player H, player B and player D, all from the Klee group). It was explained that when the cyberball was passed to the participant, they could pass it to any of the other participant's by clicking on that participant's respective icon (after the click, the Cyberball moved to the participant in question). Each participant played four rounds of the game. Each round comprised 16 throws in total (and lasted just over two minutes).

Immediately following the cyberball manipulation the same measure of psychological needs as used in Study 2 was presented (see Williams, 2009), $\alpha = .93$. The scale comprised 4, 5-item subscales assessing belonging (I feel that I belong with the others', I feel like an outsider' $\alpha = .84$, n= 185), esteem (I feel that I somehow failed', I am as valuable as the other people($\alpha = .79$), control ('I felt in control, 'I affected the course of things $\alpha = .85$), and meaningful existence (My participation was useful', 'My presence was important $\alpha = .91$). Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree), with some items reverse-coded.

3.3.2 Results

3.321 Preliminary Analyses.

Prior to analyses, data were checked manually for accuracy of entry, missing values, and meeting the assumptions of ANOVA. See Appendix F.3 for skewness and kurtosis.

3.322 Perceived Inclusion & Exclusion.

To examine how effective the different forms of cyberball feedback on participants perceived exclusion and inclusion, a between-groups a 2 (cyberball feedback: ostracism vs. inclusion) x 2 (form of feedback: constant vs. progressive) ANOVA was conducted. See Table 3.1 for perceived exclusion means across cells. A significant main effect was found for

cyberball feedback on perceived exclusion, F (1, 181) = 44.98, $p < .001$, $\eta_p^2 = 0.20$. Those who received ostracism feedback reported higher levels of exclusion (M = 6.04, SD = 2.02 vs. M = 4.01, SD = 2.27). This effect was qualified by the interaction found between cyberball feedback and form of feedback, F (1, 181) = 14.68, $p < .001$, $\eta_p^2 = 0.08$. Planned comparisons revealed that there was no statistically significant difference in perceived exclusion between participants in the constant ostracism, and those in progressive ostracism condition (M = 6.36, SD = 2.04 vs M = 5.68, SD = 1.95), t (92) = 1.64, p = .10. Participants in the constant ostracism condition reported higher levels of perceived exclusion than did participants in the constant inclusion condition (M = 6.36, SD = 2.04, vs. M = 3.16, SD = 2.08), t (92) = 7.53, $p <$ .001, or the progressive inclusion condition, (M = 4.81, SD = 2.17), t (95) = 3.61, $p < .001$. Each of these effects remained significant when controlling for the familywise error rate (critical alpha value = 3.03, p <. 01).

Table 3.1.

Mean Perceived Exclusion across Conditions in Study 3

Ball Sequence	M	SD
Constant Ostracism	6.36	2.04
Progressive Inclusion	4.81	2.17
Progressive Ostracism	5.68	1.95
Constant Inclusion	3.16	2.08

Note. Participants rated on a scale of 1-9 how excluded they felt. Constant ostracism ball receipt sequence was 2 ,2,2,2; Progressive inclusion sequence was 2,3,3,4; Progressive ostracism ball receipt sequence was 2,3,3,4; Constant inclusion ball receipt sequence was 4,4,4,4. There were four round of the ball tossing game, each round consisted of 16 throws between four players, inclusive of the participant.

A significant effect was found for cyberball feedback on perceived inclusion, F (1, 181) = 39.70, $p < .001$, $\eta_p^2 = 0.18$. Those who received ostracism feedback reported lower levels of inclusion ($M = 3.74$, $SD = 1.99$ vs. $M = 5.49$, $SD = 2.04$). This effect was qualified by the interaction found between cyberball feedback and form of feedback, F (1, 181) = 31.79, $p < .001$, $\eta_p^2 = 0.15$. See Table 3.2 for mean perceived inclusion across conditions. Planned comparisons revealed that participants in the constant ostracism condition reported lower levels of perceived inclusion than did participants in the progressive ostracism condition ($M = 4.48$, $SD = 1.97$), t (92) = -3.54 , $p < .001$, participants in the constant inclusion condition ($M = 3.10$, $SD = 1.80$ vs. $M = 6.39$, $SD = 1.85$), t (92) = -8.73, $p < .001$, and the progressive inclusion condition ($M = 4.66$, $SD = 1.87$), t (95) = -4.19 , $p < .001$. Each of these effects remained significant when controlling for the familywise error rate (critical alpha value = 3.03, p <. 01). There was no statistically significant difference in perceived inclusion between participants in the progressive ostracism and those in the progressive inclusion condition, ($M = 4.48$, $SD = 1.97$ vs. $M = 4.66$, $SD = 1.87$), t (89) = .45, $p = .65$.

Table 3.2.

Mean Perceived Inclusion across Conditions in Study 3

Ball Sequence	M	SD
Constant Ostracism	3.10	1.80
Progressive Inclusion	4.66	1.87
Progressive Ostracism	4.48	1.97
Constant Inclusion	6.39	1.85

Note. Participants rated on a scale of 1-9 how included they felt. Constant ostracism ball receipt sequence was 2 ,2,2,2; Progressive inclusion sequence was 2,3,3,4; Progressive ostracism ball receipt sequence was 2,3,3,4; Constant inclusion ball receipt sequence was 4,4,4,4. There were four round of the ball tossing game, each round consisted of 16 throws between four players, inclusive of the participant.

3.323 Threatened psychological needs.

To examine the impact the different forms of cyberball feedback had on participants composite measure of four needs of belonging, esteem, control and meaning, a between groups a 2 (cyberball feedback: ostracism vs. inclusion) x 2 (form of feedback: constant vs. progressive) between-groups ANOVA was conducted. A main effect was found on the composite psychological needs threat for cyberball feedback, F (1, 181) = 16.00, $p < .001$, $\eta_p^2 = 0.08$. See Table 3.3 for mean psychological needs satisfaction across the conditions, and Table 3.4 for means of specific needs. Participants who received inclusion feedback reported higher scores (M = 87.59, SD = 19.17 vs. M = 75.99, SD = 20.26). This effect was qualified by the interaction found between cyberball feedback and form of feedback, F (1, 181) = 7.86, p = .006, $\eta_p^2 = 0.04$. Planned comparisons, using the Bonferroni-Holm correction to assess this effect, further revealed lower scores amongst those who received constant ostracism feedback as opposed to progressive ostracism (M = 71.82, SD = 21.38 vs M = 80.73, SD = 18.00), t (92) = 2.17, p = .033. Those who received constant inclusion feedback did not differ from those who received progressive inclusion feedback, (M = 91.27, SD = 17.85 vs. M = 84.15, SD = 19.92), t (89) = 1.79, p = .076.

Table 3.3.

Mean Psychological Needs Satisfaction across Conditions in Study 3

Condition	M	SD
Constant Ostracism	71.82	21.38
Progressive Inclusion	84.15	19.92
Progressive Ostracism	80.73	18.00
Constant Inclusion	91.27	17.85

Note. Psychological needs satisfaction was measured using the 20 item Psychological Needs Scale by Williams (2009) that comprises 4, 5-item subscales for belonging, esteem, control and meaningful existence, with a total possible score of 35 for each subscale, and total possible composite score of 140. Higher scores represent higher needs satisfaction. Lower scores represent higher psychological threat.

Belonging, esteem, control and meaningful existence. To examine the impact the different forms of cyberball feedback had on the respective psychological needs of belonging, esteem, control and meaning, a 2 (cyberball feedback: ostracism vs. inclusion) x 2 (form of feedback: constant vs. progressive) MANOVA was conducted. ***Belonging:*** A main effect was found for cyberball feedback on belonging, F (1, 181) = 13.05, $p < .001$, $\eta_p^{2 =}$ 0.07. Participants who received inclusion feedback reported higher scores (M = 21.02., SD = 5.44 vs. M = 18.02, SD = 5.75). This effect was qualified by the interaction found between cyberball feedback and form of feedback, F (1, 181) = 3.71, p = .056, $\eta_p^{2 =}$ 0.02. Planned comparisons using the Bonferroni-Holm correction revealed that there were no significant differences found between participants in the constant ostracism and progressive ostracism conditions, (M = 17.18, SD = 5.73 vs. M = 18.98, SD = 5.69) t (92) = -1.52, p = .132, nor between those who were constantly included (M = 21.73, SD = 5.32 vs. M = 20.36, SD = 5.52), t (95) = .65, p =. 71, and those who were progressive included

Esteem: An interaction was found between cyberball feedback and form of feedback, F (1, 181) = 6.65, p = .011, $\eta_p^{2 =}$ 0.04. Planned comparisons using Bonferroni-Holm conducted to assess this effect further revealed no differences between constantly ostracised participants and progressively ostracised participants (M = 21.42 SD = 5.95 vs. M = 23.02, SD = 5.54), t (92) = 1.28, p = .205. A significant difference did emerge between those in the constantly included and progressively included conditions (M = 24.55 SD = 5.95 vs. 21.49, SD = 5.54) t (89) = 2.35, p = .021. Participants in the former condition reporting higher scores.

Control: A main effect was found for cyberball feedback on control, F (1, 181) = 24.86, $p < .001$, $\eta_p^{2 =}$ 0.12. Participants who received inclusion feedback reported higher scores (M = 21.13., SD = 5.30 vs. M = 16.81, SD = 6.40). This effect was qualified by the interaction found between cyberball feedback and form of feedback, F (1, 181) = 6.59, p = .011, $\eta_p^{2 =}$ 0.04. Planned comparisons revealed that participants who were constantly

ostracised reported significantly lower levels of control than those who were progressively ostracised (M = 18.27, SD = 5.80), t (92) = -2.12, p = 0.037. There were no significant differences between participants who were progressively included and constantly included, (M = 20.34, SD = 5.54 vs. M = 21.98, SD = 4.96), t (89) = -1.48, p =.14.

Meaningful existence: A main effect was found for cyberball feedback on meaningful existence, F (1, 181) = 12.73, p < .001, η_p^2 = 0.07. Participants who received inclusion feedback reported higher scores (M = 22.47., SD = 6.53 vs. M = 18.99, SD = 6.55). This effect was qualified by the interaction found between cyberball feedback and form of feedback, $\boldsymbol{F}$ (1, 181) = 3.99, p = .047, η_p^2 = 0.02. Planned comparisons revealed that participants in the constant ostracism condition had significantly lower scores than those in the progressive ostracism condition, (M = 17.70, SD = 7.33 vs. M = 20.45, SD = 5.25), t (92) = 2.11, p = 0.038. No differences were found between those in progressive inclusion and constant inclusion conditions, (M = 21.96, SD = 6.68 vs. M = 20.45, SD = 5.25), t (95) = .91, p = 0.44. Cell means for the above individual needs can be seen in Table 3.4.

See Table 3.5 for the correlations between variables utilized in Study 3. Both inclusion and exclusion were highly correlated with the four psychological needs, and the four needs highly correlated. These high correlations serve to support the rationale for linking psychological needs to well-being, and perceived inclusion and exclusion.

Table 3.4

Mean Individual Needs Satisfaction across Conditions in Study 3

	Belonging		Esteem		Control		Meaning	
Condition	M	SD	M	SD	M	SD	M	SD
Constant O	17.18	5.73	21.42	5.95	15.52	6.68	17.70	7.33
Progressive I	20.36	5.52	21.49	6.78	20.34	5.54	21.96	6.68
Progressive O	18.98	5.69	23.02	6.17	18.27	5.80	20.45	5.25
Constant I	21.73	5.33	24.55	5.54	21.98	4.96	23.02	6.41
Total	19.50	5.79	22.56	6.22	18.94	6.26	20.70	6.76

Note. Constant O = 2,2,2,2 ball receipt sequence, Progressive I = 2,3,3,4 ball sequence, Progressive O = 4,3,3,2 ball receive sequence, Constant I = 4,4,4,4 ball receipt sequence. Psychological needs satisfaction were measured using the 20 item Psychological Needs Scale by Williams (2009) that comprises 4, 5-item subscales for belonging, esteem, control and meaningful existence, with a total possible score of 35 for each subscale. Higher scores represent higher needs satisfaction. Lower scores represent higher psychological threat.

Table 3.5

Descriptive Statistics and Correlations for Study 3 Variables

Measure	M	SD	1	2	3	4	5
1. Included	4.61	2.19					
2. Excluded	5.04	2.37	-.75**				
3. Belonging	19.50	5.79	.62**	-.56**			
4. Esteem	22.56	6.22	.41**	-.42**	.49**		
5. Control	18.94	6.26	.66**	-.56**	.72**	.32**	
6. Mexist	20.70	6.76	.59**	-.56**	.70**	.43**	.73**

Note. Included/Excluded = Participant rating on how included/excluded they felt on a scale of 1-9, Belonging, Esteem, Control and Meaningful existence measured using 20 item Psychological Needs Scale by Williams (2009), comprises 4, 5-item subscales with a total possible score of 25 for each measure. MExist = Meaningful existence. N = 185, **p <.01 *. P < .05

3.3.3 Discussion

In Study 3 we sought to address the relatively low detection and impact of progressive ostracism feedback that occurred in Study 2, by keeping the ball sequence constant for those being ostracised. We tested three hypotheses. The first stated that constant ostracism would result in higher levels of perceived exclusion than progressive ostracism. The second stated that constant as opposed to progressive ostracism would lead to lower levels of perceived inclusion. The third stated that constant (as opposed to progressive) ostracism would result in higher threat to the psychological needs of belonging, esteem, control, and meaningful existence.

No support was found for the first hypothesis. No significant differences were found in the perceived exclusion scores of those who were progressively and constantly ostracised.

Full support was found for the second hypothesis. Participants who were constantly ostracised felt significantly less included than did participants who were progressively ostracised.

Some support was found for the third hypothesis. The overall four need scores of those who were constantly ostracised was lower than those who were progressively ostracised. When comparing each of the four needs separately no effects were found with respect to both the belonging and self-esteem scores of those who were constantly as opposed to progressively ostracised. Differences did emerge, however with respect to both control and meaningful existence. Participants who were constantly as opposed to progressively ostracised reported lower levels of control and meaning.

Taken together these findings suggest that there is some evidence to indicate that constant as opposed to progressive ostracism is more potent. Participants who received constant ostracism felt less included and reported lower levels of control and meaningful existence. As such we conducted a fourth study. In this study we sought to re-examine the three hypotheses tested in Study 2 using the medium of constant as opposed to progressive

ostracism. In addition to this, because Studies 1 and 2 utilised high and low levels of subjective well-being in testing our hypotheses, an obvious criticism that may be levelled at this work is that subjective well-being was not manipulated. Based on Frederickson's (2001) broaden and build model which suggests that high well-being functions to allow participants to make the most of their psychological experiences, we sought to address this potential weakness. This was done by introducing a mood elevation manipulation (via exposure to music and humour prior to the exclusion experience). Three hypotheses were subsequently tested. The first was that in-group favouritism would be more pronounced in the minimal group paradigm following constant ostracism. The second was that high subjective well-being (in conjunction with elevated mood) would result in less in-group favouritism. The third was that high subjective well-being (in conjunction with elevated mood) would serve as a buffer to psychological need threat following constant ostracism.

3.4 Study 4: Mood Manipulation and Threat Pre Favouritism

Study 3 revealed that there were differences in the effects of constant ostracism and progressive ostracism on psychological threat, in that the former appeared to be associated with higher psychological threat. In addition to this, because Studies 1 and 2 examined pre-existing levels of subjective well-being, an obvious criticism that may be levelled at this work is that subjective well-being was not manipulated. Based on the work of Barbara Frederickson's and her broaden and build model (Frederickson, 2001), which postulates that high well-being is a psychological resource that allows people to capitalize on their positive experiences, we sought to address this potential shortcoming. We did this via the introduction of a mood manipulation whereby participants with high and low well-being were exposed to music and humour prior to the cyberball ostracism feedback. Three hypotheses were subsequently tested. The first was that in-group favouritism would be more pronounced in the minimal group paradigm following constant ostracism. The second was that high subjective

well-being (in conjunction with elevated mood) would result in less in-group favouritism. The third was that high subjective well-being (in conjunction with elevated mood) would serve as a buffer to psychological need threat following constant ostracism.

3.4.1 Method

3.411 Participants.

Two hundred and eighty-four participants took part in this this study. All were recruited through the online Prolific network and paid NZ $ 15 each for taking part. Data from 46 participants were excluded because they had either taken part in similar studies (n= 21) or failed to acknowledge that they belonged to the 'Klee' group (n=29). Of the 46 excluded participant data, 4 participants fell under both exclusion criteria, in that they had taken part in similar studies, and also failed to acknowledge that they belonged to the Klee group, as such their data only required one instance of exclusion. The final sample comprised 238 participants; 156 male, 79 female, and 3 people who did not identify with either gender (non-binary). As in Studies 2 and 3, final participant numbers were considered acceptable on the basis of Hartgerink et al. (2015) review suggesting that the average ostracism effect is generally large, d>1.4. In addition, a post hoc G-Power analysis using G*Power3 (Faul et al., 2007) for ANOVA (n = 238), with six independent groups, using a two tailed test (effect size, f = 0.19), revealed 95% power. This suggests that the sample size was sufficient to detect a small to medium effect.

3.412 Design.

In a 3 x 2 between-groups design, participants were presented with either comedy, music, or no-media content prior to receiving either constant or progressive cyberball ostracism feedback. Baseline well-being was assessed prior to the presentation of cyberball feedback. Belonging, self-esteem, control, meaning and in-group favouritism were assessed following cyberball ostracism feedback.

Participants were randomly assigned to conditions of constant ostracism (hereafter sequence 2, 2, 2, 2, n= 37), progressive ostracism (hereafter sequence 4, 3, 3, 2, = 41), comedy pre constant ostracism (hereafter comic sequence 2, 2, 2, 2, *n* = 38), comedy pre progressive ostracism (hereafter comic sequence 4, 3, 3, 2, *n* = 37), music pre constant ostracism (hereafter music sequence 2, 2, 2, 2, *n* = 38), and music pre progressive ostracism (hereafter music sequence 4, 3, 3, 2, n= 47).

3.413 Materials and procedure.

The study utilized the same materials and procedure as in Study 3, except for exposure to music and humorous media content in this last study, pre-ostracism, and an in-group out group evaluation task. Music and humour are employed because they have been reported as having the ability to positively affect mood and emotions. It is thought that human beings have an inborn drive to make and enjoy music, with the adaptive purpose thought to include social cohesion (Perlovsky, 2017), while with humour humans are known to experience an emotional high when they perceive funniness (Martin, 2010). The media content was pilot tested (see next paragraph), where participants reported improved mood following watching the comic and music videos. The comic content consisted of three media clips of Rowin Atkinson's comic works (Mr. Bean Videos), while the music content consisted of three music clips of popular music. See Appendix D.1 for the comic content links, and Appendix D.2 for the music content links. See Appendix D.3 and D.4 for the change in mood graphs. Video content was cut to approximately 3 minutes each, for total viewing time of about 9 minutes. The control group was not exposed to any media content.

Video Content Pilot. To test possible mood elevation from exposure to music content, a pilot was conducted with 48 participants attending the University of Otago. Participants rated their happiness and irritability levels before and after exposure to the content on two scales: (1 extremely unhappy – 7 extremely happy) ; and (1 extremely irritable – 7 not irritable at all). 'Happiness' mean scores increased following exposure to the music content

from (M = 4.58, SD = 0.82) to (M = 5.94, SD = 0.95), t (47) = -2.51, p = .016, d = 1.53 (a large effect). There were no significant differences in 'irritability' scores pre (M = 2.54, SD = 1.18) and post exposure to music content (M = 2.52, SD = 1.49), t (48) = 0.11, p = .91, d = 0.015.

To test possible mood elevation from exposure to comic content, an additional pilot study was conducted with 43 student participants attending the University of Otago. Participants rated their happiness and irritability levels before and after exposure to the comic content on two scales: (1 extremely unhappy – 7 extremely happy); and (1 extremely irritable – 7 not irritable at all). 'Happiness' mean scores increased following exposure to the comic content from (M = 4.37, SD = 1.09) to (M = 4.95, SD = 1.21), t (42) = 2.82, p = .007, d = .50 (a medium effect). There were no significant differences in 'irritability' scores pre (M = 2.98, SD = 1.24) and post exposure to comic content (M = 2.77, SD = 1.36), t (42) = 0.99, p = .329, d = 0.16.

Main Study.

The main study was conducted online. Participants logged in on the prolific website and once they agreed to participate they were directed to the on-screen instructions. There were four sections in the experiment; when participants completed one section, they moved on to the next by following on screen prompts.

Part 1. In the first section of the experiment, Well-being at Time 1 (i.e., at baseline) was measured using an adapted version of the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) as in Study 3. The scale comprised 14 items (α = .91, n= 238) and contained statements such as 'I feel optimistic about the future', 'I feel useful', 'I feel relaxed', 'and 'I feel good about myself'. Responses were scored on a 5-point Likert Scale (none of the time - 1 to 5- all of the time).

Part 2. The second section of the experiment began with the presentation of the Klee and Kandinsky variant of the minimal group procedure developed by Tajfel, Billig, Bundy,

and Flament (1971). Using this technique participants were presented with 8 pairs of paintings by two abstract artists, Paul Klee and Vassilij Kandinsky and asked for their preference. Following this, and regardless of their actual preference, all participants were then informed (via computer) that they tended to prefer the paintings by Klee and as such were put into the Klee group.

Immediately following group assignment, participants were led to believe that they were next playing an online ball tossing game of cyberball (see Zadro et al. 2004) with other Klee group members. Those in media content exposure conditions were then presented with media (comedy or music) content before the cyberball game, whereby it was explained that they would be presented with media footage before proceeding to play the game. The games were pre-programmed for participants to receive given number of throws per round, in four rounds of the game. One round of a cyberball game consisted of 16 throws between four players (participant included). Each participant played four rounds of the game in varying exclusion levels (see study design). There were 6 conditions: constant ostracism (sequence 2, 2, 2, 2), progressive ostracism (sequence 4, 3, 3, 2), comedy pre constant ostracism (comic sequence 2, 2, 2, 2), comedy pre progressive ostracism (comic sequence 4, 3, 3, 2), music pre constant ostracism (music sequence 2, 2, 2, 2), and music pre progressive ostracism (music sequence 4, 3, 3, 2). Participants were introduced to the cyberball game as part of the study which required them to undertake some 'mental visualization tasks' wherein they, along with three others from the Klee group, would take part in a game of Cyberball (supposedly accessed and played via the internet). After ostensibly setting the game up and linking the participants with the three people with whom they would supposedly play, it was emphasized in the words of Zadro and colleagues, that the game was simply a method 'by which they could practice their mental visualization skills' (Zadro et al., 2004, p. 561). To emphasize this point, as they played, participants were instructed to 'visualize the game, the situation, themselves and the other players' (Zadro et al., p. 561). The mental visualization instruction

is a cover story intended to have the participants believe that the ball tossing game is by itself unimportant for the experiment (Williams & Jarvis, 2006).

The game depicted four animated icons. One of these was identified as the participant (i.e., player from the Klee group). The other icons depicted three in-group members (player H, player B and player D, all from the Klee group). It was explained that when the cyberball was passed to the participant, they could pass it to any of the other participants by clicking on that participant's respective icon (after the click, the Cyberball moved to the participant in question). Each participant played four rounds of the game. Each round comprised 16 throws in total (and lasted just over two minutes).

Part 3. Immediately following the cyberball feedback was the measure of psychological needs using the 20 item Psychological Needs Scale by Williams (2009) as in Study 3, $\alpha = .92$. The scale comprises 4, 5-item subscales assessing belonging (I feel that I belong with the others', I feel like an outsider' $\alpha = .83$, n= 238), esteem (I feel that I somehow failed', I am as valuable as the other people ($\alpha = .84$), control ('I felt in control, 'I affected the course of things $\alpha = .80$), and meaningful existence (My participation was useful', 'My presence was important $\alpha = .90$). Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree), with some items reverse-coded.

Part 4.

The fourth and final section of the experiment included a measure of in-group favouritism. In-group favouritism was assessed using the same 20 pairs of *9-point trait-ratings* scales used in Study 2. Seven of the traits used were based on the terms described in Oakes, Haslam, and Turner (1994) to depict commonly used stereotypes (i.e., *loud-soft-spoken, pushy-reticent, humble-arrogant, confident-shy, aggressive-non-aggressive, ignorant-well informed, straight forward-hypocritical*). The remaining thirteen traits were based on those reported in Platow, McClintock, and Liebrand (1990); *helpful-unhelpful, cooperative-competitive, honest-dishonest, intelligent-unintelligent, selfish-unselfish, strong-weak,*

flexible-rigid, manipulative-sincere, fair-unfair, warm-cold, friendly-unfriendly, consistent-inconsistent, trustworthy-untrustworthy). Responses were coded so that high scores reflected more positive evaluations. Using these terms participants were given the opportunity to rate in-group (i.e., Klee) and out-group members (i.e., Kandinsky).

Finally, participants were presented with manipulation check questions. Here participants were asked if they had previously taken part in similar experiments, if they could correctly specify that they had been assigned to the Klee group, to rate how funny, pleasant and enjoyable the videos they watched were, and how included/excluded they felt during the cyberball game on scales of (1 not at all – 9 extremely).

Upon completion of the experiment, each participant was thanked for their participation and debriefed. All were informed that the cyberball game was pre-programmed to various levels of ostracism. It was additionally explained that most people find even mild forms of ostracism (such as those involved in the cyberball game) upsetting, but that they recover from this within a few minutes (Williams, 2009).

3.4.2 Results

3.421 Preliminary Analyses.

Prior to analyses, data were manually checked for accuracy of entry, missing values, and assessed for meeting the assumptions of ANOVA. See Appendix F.4 for skewness and kurtosis.

3.422 Manipulation Checks.

Mood: To check how funny, enjoyable and pleasant the media content were, 2 (form of cyberball ostracism feedback: constant vs. progressive) x 2 (media type: comic vs music) MANOVA was conducted. A main effect was found for media type on funniness, F (1, 157) = 37.25, $p < .001$, $\eta_p^{2 =}$ 0.19. Comic content was judged to be funnier, (M = 6.20, SD = 2.33) than music content, (M = 4.00, SD = 2.35), t (159) = 5.97, $p < .001$. Cell means can be seen in Table 4.1. No differences were found in terms of how enjoyable (M = 6.32, SD = 2.33 vs.

M = 6.11, SD = 2.63) *t* (159) = 0.53, *p* = .60, and pleasant (*M* = 6.37, *SD* = 2.18 vs. *M* = 5.93, SD = 2.39), *t* (159) = 1.23, *p* = .23, the comic and music content were. Cell means are presented in Table 4.1.

A main effect found for form of cyberball ostracism feedback, *F* (3, 157) = 4.68, *p* = .038, $\eta_p^2 =$ 0.03. Participants who were constantly, as opposed to progressively ostracised, reported that the media content was on the whole less pleasant (*M* = 5.74, *SD* = 2.41 vs. *M* = 6.49, SD = 2.14) *t* (159) = 2.11, *p* = .036.

Table 4.1.

Content Ratings on Funniness, Pleasantness and Enjoyment in Study 4

	Funny		Pleasant		Enjoyable	
Condition	M	SD	M	SD	M	SD
Comic Constant Ostracism	6.11	2.19	6.03	2.14	6.00	2.39
Comic Progressive Ostracism	6.29	2.5	6.71	2.19	6.63	2.26
Music Constant Ostracism	3.50	2.09	5.45	2.65	5.63	2.80
Music Progressive Ostracism	4.38	2.49	6.32	2.11	6.49	2.45

Note: Participants rated on a scale of 1-9 how funny, pleasant and enjoyable the media content they were exposed to was. Higher scores indicate higher ratings of level of funniness, pleasantness, and enjoyment of the content. Means for participants in the control conditions of constant and progressive exclusion are excluded from the table as they were not exposed to any media content and consequently not asked to rate media content in the above manipulation check.

Perceived exclusion: To assess how the various manipulations affected perceived exclusion across the conditions, a 2 (form of cyberball ostracism feedback; constant vs. progressive) x 3 (media type: comic, music, none) between-subjects ANOVA was conducted. The only main effect to emerge was a main effect for form of cyberball feedback, *F* (2, 232) = 7.70, *p* = .006, $\eta_p^2 =$ 0.032. See Table 4.2 for all cell means. Planned comparisons revealed that the participants who were constantly ostracised felt more excluded than participants who

were progressively ostracised (M = 6.37 SD = 2.14 vs. M = 5.57 = SD = 2.28), t (159) = 2.79, p = .006.

Table 4.2.

Mean Perceived Exclusion in Study 4

Condition	M	SD
Constant Ostracism	6.41	1.94
Progressive Ostracism	5.46	2.37
Comic Constant Ostracism	6.16	2.37
Comic Progressive Ostracism	5.59	2.13
Music Constant Ostracism	6.55	2.14
Music Progressive Ostracism	5.64	2.37

Note. Participants rated on a scale of 1-9 how excluded they felt. Higher scores indicate higher perceived levels of exclusion.

Perceived inclusion: To assess how the various cyberball manipulations affected perceived inclusion across the conditions, a 2 (form of cyberball feedback; constant vs progressive) x 3 (media type: comic, music, none) between-subjects ANOVA was conducted. The only effect to emerge was a main effect for form of cyberball feedback, F (2, 232) = 20.27, p < .001, η_p^2 = 0.080. See Table 4.3 for all cell means. Participants who were constantly ostracised felt less included than those who were progressively ostracised (M = 3.34 SD = 1.86 vs. M = 4.52 = SD = 2.14), t (236) = 4.56, p < .001.

Table 4.3.

Mean Perceived Inclusion in Study 4

Condition	M	SD
Constant Ostracism	3.24	1.64
Progressive Ostracism	4.68	2.16
Comic Constant Ostracism	3.24	2.12
Comic Progressive Ostracism	4.46	1.94
Music Constant Ostracism	3.53	1.83
Music Progressive Ostracism	4.43	2.30

Note. Participants rated on a scale of 1-9 how included they felt. Higher scores indicate higher perceived levels of inclusion.

3.423 In-group Favouritism.

Evaluations: In order to assess evaluations of in-group and out-group targets as a function of baseline well-being level and form of cyberball ostracism feedback we conducted a 2 (well-being: high vs. low) x 2 (form of cyberball ostracism feedback: constant vs progressive) x 3 (media type: comic, music, none) x 2 (target group: in-group vs. out-group) mixed model analysis of variance. The first three factors were between groups, the fourth was within groups. Cell means may be seen in Table 4.4. One outlier was identified whereby extremely low evaluation was given to the outgroup, (79), and one whereby extremely low evaluation was given to the in-group, (61). These were transformed following Tabachnick and Fidell's (2007) method (to the closest non-outlying values). A main effect was found for target group, F (2, 226) = 42.64, $p < .001$, $\eta_p^2 = .16$. Overall, there was a tendency for the in-group to be evaluated less positively than the out-group (M = 95.66, SD = 10.47 vs. M = 100.93, SD = 6.78). This effect was qualified by a significant interaction between form of cyberball feedback and target group, F (5, 226) = 10.00, p = 0.002, $\eta_p^2 = .042$. Planned comparisons conducted to examine this effect further revealed two significant effects. Those who were progressively ostracized (M = 97.89, SD = 10.83 vs M = 100.74, SD = 7.34), t (124)

= 2.36, p = .02, and those who were constantly ostracized (M = 93.19, SD = 9.51 vs M = 101.14, SD = 6.11), t (112) = 7.17, p < .001 gave lower ratings to the in-group than the out-group. Those who were constantly ostracized however, tended to show more differentiation in favour of the out-group than those who were progressively ostracized (M = 7.95 vs. M = 2.85). A main effect was found for form of cyberball feedback, F (2, 226) = 9.78, p = .002, $\eta_p^{2 =}$ 0.042. Those who were constantly ostracized tended to give lower ratings overall (M = 194.38, SD = 10.65 vs M = 198.64, SD = 12.66). No main or interaction effects were found with respect to well-being (all p's >. 13).

Table 4.4.

In-group and Out-group Evaluations in Study 4

	In-group Evaluations		Out-group Evaluations	
Ball Sequence	M	SD	M	SD
Constant Ostracism	93.43	10.14	101.65	6.15
Progressive Ostracism	97.61	12.28	100.78	8.20
Comic Constant Ostracism	93.45	8.59	100.71	6.45
Comic Progressive Ostracism	100.61	8.93	100.68	6.91
Music Constant Ostracism	92.68	9.99	101.08	5.86
Music Progressive Ostracism	96.34	10.75	100.74	7.04
Total	95.66	10.47	100.93	6.78

Notes: Evaluations were on a scale of 1-9 for 20 sets. These were summed for each participant's evaluations. Highest possible total positive rating is 180.

3.424 Threatened Psychological Needs.

The composite measure of psychological needs: In order to examine how well-being, ostracism type, and media type affected the composite psychological needs across conditions we conducted a 2 (well-being: high vs. low) x 2 (form of cyberball ostracism: constant vs progressive) x 3 (media type: none, comic and music) between-subjects ANOVA.

Cell means can be seen in Table 4.5, and are illustrated in Fig. 3. The only effects to emerge were two main effects.

The first was found for baseline well-being, F (2, 226) = 26.69, $p < .001$, $\eta_p^{2 =}$ 0.11. Participants with higher well-being reported higher psychological needs satisfaction than participants with lower well-being (M = 84.23, SD 19.81 vs. M = 72.30, SD = 17.87).
The second was found for form of cyberball feedback, F (2, 226) = 5.32, p = .022, $\eta_p^{2 =}$ 0.023. Those who were constantly ostracized reported lower needs satisfaction than those progressively ostracised (M = 75.62, $SD,$ 20.10 vs. M = 80.74, SD = 18.34).

Belonging, Esteem, Control and Meaningful Existence. In order to assess how baseline well-being, exclusion level and media type affected the four psychological needs of belonging, esteem, control and meaningful existence, a 2 (well-being: high vs. low) x 2 (form of ostracism: constant vs progressive) x 3 (media type: none, comic and music) between subjects MANOVA was conducted. Cell means for individual needs satisfaction can be seen in Table 4.6 (for sense of belonging, esteem, control and meaningful existence).

Well-being. Main effects were found for well-being on participants sense of belonging, esteem, control, and meaningful existence: those with higher well-being reported higher sense of belonging (M = 20.49 SD = 5.43 vs M = 17.29 SD = 4.78), F (2, 226) = 25.71, $p < .001$, $\eta_p^{2 =}$ .11, esteem (M = 23.40, SD = 6.34 vs M = 20.76, SD = 6.53) F (2, 226) = 9.48, p = .002, $\eta_p^{2 =}$ .04; control (M = 18.73, SD = 5.93 vs M = 16.17, SD = 5.00) F (2, 226) = 16.51, $p < .001$, $\eta_p^{2 =}$ .068, and meaning (M = 21.61, SD = 6.26 vs. M = 18.08, SD = 6.67), F (2, 226) = 20.61, $p < .001$, $\eta_p^{2 =}$ .084.

Constant vs Progressive ostracism. Belonging. No significant differences were found with respect to participants sense of belonging as a function of form of ostracism (constant vs progressive), F (1, 226) = 2.14, p = .14, $\eta_p^{2 =}$ .009. Those who constantly ostracized reported similar levels of belonging, (M = 18.44, SD = 5.68), to those who were progressively ostracized (M = 19.32, SD = 5.02).

Esteem. No significant differences were found with respect to esteem across the different forms of cyberball ostracism (constant vs progressive), F (1, 226) = .11, p = .75. Those who were fully ostracized reported similar levels of esteem, (M = 22.01, SD = 7.02), to those who were progressively ostracized (M = 22.17, SD = 6.14).

Control. A main effect was found for form of ostracism (constant vs progressive) on sense of control, F (1,226) = 14.40, p < .001, η_p^2 = .060. Those who were constantly ostracized reported lower levels of control, (M = 16.17, SD = 5.76), than those who were progressively ostracized (M = 18.62, SD = 5.26).

Meaning. A main effect was found for form of ostracism (constant vs progressive) on participants' sense of meaning, F (1,226) = 4.44, p = .036, η_p^2 = .019. Those who were constantly ostracized reported lower levels of meaning, (M = 19.01, SD = 6.97), than those who were progressively ostracized (M = 20.62, SD = 6.36).

Media Type. ***Belonging***. No effects were found for media type on participants' sense of belonging, esteem, control, and participant sense of meaning, all p's > .32.

Control: Interaction Effects, Well-being, form of ostracism and Media Type. There was a three-way interaction found between baseline well-being, form of ostracism and media type, on participants' sense of control, F (2, 226) = 3.26, p = .040, η_p^2 = .028.

Control and comedy content: Planned comparisons, using the Bonferroni-Holm method to assess this effect further, revealed that participants with higher (as opposed to lower) levels of well-being who were exposed to comic content prior to constant ostracism reported a higher sense of control, (M = 18.70, SD = 5.12 vs. M = 14.30 SD = 5.02), t(36) = 2.35, p = 0.024. A similar effect was found for participants who were exposed to progressive ostracism. Those with higher well-being (as opposed to lower) well-being who were exposed to comic content prior to ostracism reported greater levels of control (M = 21.05, SD = 5.72 vs M = 15.38, SD = 4.66), t (35) = 3.03, p = 0.005.

Control and Music Content. Participants with higher (as opposed to lower levels) of well-being who were exposed to music content prior to constant ostracism reported a higher sense of control, (M = 19.05, SD = 5.59 vs M = 12.81, SD = 4.51), t (36) = 3.67, p = 0.001. There were no significant differences in sense of control for those who were progressively ostracized, when exposed to music content prior, whether they had high or low baseline well-being (M= 18.08, SD= 4.26 vs M = 17.19, SD = 5.25), t(45) = .64, p = 0.53.

Groups not exposed to media content. Participants who were not exposed to any form of media content reported similar levels of control when constantly ostracized, whether they had high or low well-being (M = 17.00, SD = 7.48 vs M = 14.83, SD = 3.97), t(35) = 1.09, p = 0.28. A similar effect was found for those progressively ostracized and not exposed to any media content. Thus, participants reported identical levels of control whether they had high (M = 19.86, SD= 5.85), or low baseline well-being (M= 19.75, SD= 4.69), t (39) = .065, p = 0.95.

Meaning: Interaction Effects, Well-being, form of ostracism and Media Type: There was a three-way interaction between baseline well-being, form of ostracism, and media type on participants' sense of meaning, F (2, 226) = 3.24, p = .041, $\eta_p^{2 =}$ .028.

Meaning and comedy content. Planned comparisons using the Bonferroni-Holm correction, conducted to assess this effect further revealed that participants with higher (as opposed to lower well-being) who were exposed to comic content prior to progressive ostracism reported a higher sense of meaning, (M = 23.00, SD = 5.34 vs M = 16.11, SD = 8.44), t (35) = 2.77, p = 0.011.

Meaning and Music content. Planned comparisons using the Bonferroni-Holm method revealed that participants with higher as opposed to lower well-being who were exposed to music content prior to constant ostracism reported a significantly higher sense of meaning, (M = 22.18, SD = 6.47 vs M = 13.88, SD = 5.69), t(36) = 4.12, $p <$ 0.001. There were no significant differences in threat to sense of meaning for those progressively

ostracized as a function of high and low well-being (M = 21.05, SD = 6.38 vs M = 20.31, SD = 6.04), $t(45) = -.407$, $p = 0.68$. No other significant effects emerged.

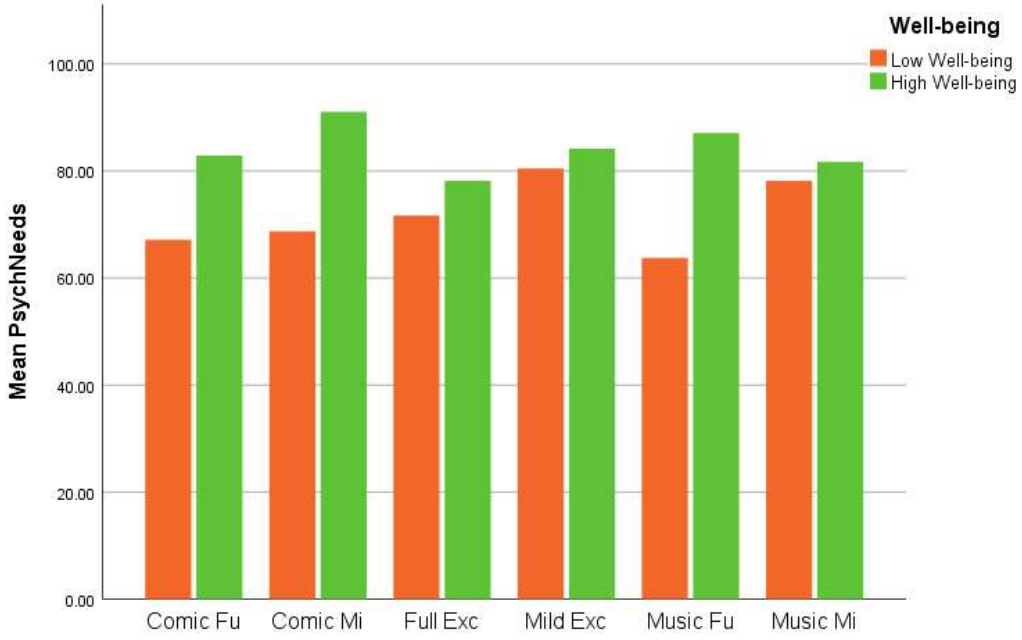
Groups not exposed to media content. Participants who were not exposed to any form of media content reported similar levels of meaning when constantly ostracized, irrespective of whether they had high or low well-being (M = 20.68, SD = 7.35 vs M = 19.17, SD = 6.43), t (35) = -.677, p = 0.51. A similar effect was found for those who were progressively ostracized and not exposed to any media content, regardless of whether they had high (or low) baseline well-being, (M = 22.00, SD = 5.30 vs M = 20.5, SD = 5.40), t (39) = .90, p = .38.

Table 4.5.

Mean Psychological Needs Satisfaction Levels across Conditions in Study 4

Condition	M	SD
Constant Ostracism	75.00	21.45
Progressive Ostracism	82.36	17.86
Comic Constant Ostracism	74.61	19.83
Comic Progressive Ostracism	80.19	20.88
Music Constant Ostracism	77.26	22.10
Music Progressive Ostracism	79.74	16.86

Note. Psychological needs satisfaction measured using the 20 item Psychological Needs Scale by Williams (2009) that comprises 4, 5-item subscales for belonging, esteem, control and meaningful existence, with a total possible score of 35 for each subscale, and total possible composite score of 140. Higher scores represent higher needs satisfaction. Lower scores represent higher psychological threat.



Note. Comic Fu = Constant Ostracism + Exposure to comic content prior, Comic Mi = Progressive Ostracism + Exposure to comic content prior, Full Exc = Constant Ostracism, Mild Exc = Progressive Ostracism, Music Fu = Constant Ostracism + Exposure to music content prior, Music Mi = Progressive Ostracism + Exposure to music content prior.

Figure 3. Mean psychological needs threat by condition and well-being in Study 4.

Table 4.6

Mean Individual Needs Satisfaction across Conditions in Study 4

	Belonging		Esteem		Control		Meaning	
Condition	M	SD	M	SD	M	SD	M	SD
Constant	18.54	5.79	20.57	7.37	15.95	6.06	19.95	6.86
Progressive	19.37	5.01	21.93	6.54	19.80	5.25	21.26	5.34
Com Constant	18.21	5.36	21.84	6.52	16.13	5.37	18.42	6.78
Com Progressive	19.19	5.39	22.59	6.00	18.51	5.80	19.89	7.64
Music Constant	18.58	6.03	23.58	7.02	16.42	5.98	18.68	7.36
Music Progressive	19.38	4.83	22.04	6.01	17.68	4.70	20.64	6.13
Total	18.90	5.35	22.09	6.56	17.46	5.62	19.86	6.69

Note. Constant = ball receipt sequence 2,2,2,2, Progressive = ball receipt sequence 4,3,3,2, Com Constant = Exposure to comedy followed by ball game sequence 2,2,2,2, Com Progressive = Exposure to comedy followed by ball game sequence 4,3,3,2, Music Constant = Exposure to music followed by ball game sequence 2,2,2,2, Music Progressive = Exposure to music followed by ball game sequence 4, 3, 3,2. Psychological needs satisfaction measured using the 20 item Psychological Needs Scale by Williams (2009) that comprises 4, 5-item subscales for belonging, esteem, control and meaningful existence, with a total possible score of 35 for each subscale, and total possible composite score of 140. Higher scores represent higher needs satisfaction. Lower scores represent higher psychological threat.

See Table 4.7 on the overall correlations between the study variables in Study 4. Both inclusion and exclusion were highly correlated with the four psychological needs, and the four needs highly correlated.

Table 4.7.

Descriptive Statistics and Correlations for Study 4 Variables

Measure	M	SD	1	2	3	4	5	6
1.Wemwbs1	46.42	9.24						
2. Excluded	5.95	2.25	-0.05					
3. Included	3.96	2.09	0.32	-.63**				
4. Belonging	18.90	5.35	.41**	-.43**	.47**			
5. Esteem	22.09	6.51	.33**	-.33**	.24**	.49**		
6. Control	17.46	5.62	.31**	-.41**	.53**	.68**	.37**	
7. MExist	19.86	6.69	.34**	-.42**	.49**	.64**	.51**	.67**

Note. Wemwbs1 = Baseline well-being, Included/Excluded = Participant rating on how included/excluded they felt on a scale of 1-9, Belonging, Esteem, Control and Meaningful existence measured using 20 item Psychological Needs Scale by Williams (2009), comprises 4, 5-item subscales with a total possible score of 35 for each measure. MExist = Meaningful existence.

*Notes. n=238 *p<0.05 **p<0.01*

3.4.3 Discussion

In Study 4 we tested 3 hypotheses. The first was that in-group favouritism would be more pronounced in the minimal group paradigm following ostracism. The second was that high subjective well-being (in conjunction with elevated mood) would result in less in-group favouritism. The third was that high subjective well-being (in conjunction with elevated mood) would serve as a buffer to psychological need threat following constant ostracism.

No support was found for the first and second hypotheses. Participants tended to evaluate the in-group less positively than the out-group. Moreover, those who were constantly ostracised were more likely to evaluate the in-group less positively than the out-group. Some support was found for the third hypothesis. Participants with high subjective well-being and who were constantly ostracised reported higher levels of control and meaning

following exposure to pleasant media content. Those not exposed to any media content, (control) suffered significantly more threat to their sense of control and meaningful existence than those exposed to comic and music content. Indeed, only those with higher well-being (and not those with low well-being), benefited from watching this media content. Specifically, those who were constantly ostracized, when exposed to comic or music content, and who also had higher well-being suffered less threat to control and meaningful existence. The same pattern was replicated with those who were progressively ostracized when exposed to comic content. These participants reported higher control than those who had lower well-being.

In summary, participants with high well-being who were exposed to pleasant media content (comic and music) and who were constantly ostracized, reported higher levels of control and meaning. This can be taken to indicate that exposure to pleasant media content buffered the sense of control and meaningful existence for those with high baseline subjective well-being when they were constantly ostracized. High baseline well-being in the absence of media content did not buffer control and meaningful existence following constant ostracism. It appears that those with high subjective well-being somehow benefited from exposure to pleasant media content, while those with low well-being did not. Such findings are consistent with Frederickson's broaden and build theory on the possible functionality of positive emotional states.

Chapter 4: General Discussion

Social ostracism can promote in-group favouritism and undermine important human needs (i.e., belonging, self-esteem, control and meaning). Using ideas derived from Fredrickson's broaden and build theory, the research conducted as part of the present thesis sought to investigate the extent to which high levels of subjective well-being would inhibit the expression of such outcomes.

In Study 1, we used gender groups to test the association between well-being and in-group favouritism, as well as assessed changes in subjective well-being following the expression of favouritism. The hypothesis was that those lower in well-being would display more in-group favouritism. Support was found for the hypothesis. Lower levels of well-being were associated with greater levels of in-group favouritism, and greater levels of in-group favouritism were also associated with increased well-being.

Study 2 built on these findings to test the association between well-being and in-group favouritism amongst the members of minimal groups who were presented with cyberball feedback (manipulated through various levels of ostracism and inclusion). In study 2 three hypotheses were tested. The first stated that ostracised (as opposed to included) participants would show greater levels of in-group favouritism. The second stated that high levels of subjective well-being would be associated with reduced in-group favouritism amongst those who were progressively ostracised. The third stated that high levels of subjective well-being would be associated with less threatened needs (i.e., higher levels of self-esteem, belonging, control and meaning) amongst those who were progressively ostracised.

None of the hypotheses were supported. In-group favouritism was shown with respect to in-group and out-group evaluations. This effect was, however unaffected by cyberball ostracism. No evidence was found to suggest that progressively ostracised participants with high well-being showed less in-group favouritism. Further, in contrast to the findings reported in Study 1, those with higher (as opposed to lower) well-being tended to show more

in-group favouritism. No evidence was found to suggest that high levels of well-being were associated with less threatened needs amongst those who were ostracised. Contrary to expectations, participants in the first progressive inclusion condition (ball sequence 2, 3, 3, 4) appeared to experience significantly higher threat to their psychological needs than those in in all other conditions. These participants did not show more in-group favouritism. Additionally, the respective patterns of favouritism in this condition were unaffected by levels of well-being. Thus, those who reported feeling threatened following exclusion did not show more in-group favouritism.

Study 3, on the basis of the findings reported in Study 2, sought to examine the possibility that the progressive ostracism strategy used in that study (e.g., where people received the ball in the sequence 4, 3 3, 2) might not have been as effective as constant ostracism strategy (e.g., where people receive the ball in say the sequence 2, 2, 2, 2). In this regard, three hypotheses were tested. The first suggested that constant ostracism as opposed to progressive ostracism would lead to greater levels of exclusion. The second stated that constant as opposed to progressive ostracism would lead to lower levels of perceived inclusion. The third stated that constant as opposed to progressive ostracism would have a greater impact on the four needs of belonging, control, self-esteem and meaning.

No support was found for the first hypothesis. Full support was found for the second hypothesis and some support was found for the third hypothesis. No significant differences were found in the perceived exclusion scores of those who were progressively and constantly ostracised. Participants who were constantly ostracised did, however, feel significantly less included than did participants who were progressively ostracised. Moreover, people who were constantly as opposed to progressively ostracised reported lower levels of control and meaning.

In Study 4, utilizing ideas from Frederickson's broaden and build theory, 3 hypotheses were tested. The first was that in-group favouritism would be more pronounced in the

minimal group paradigm following ostracism. The second was that high subjective well-being (in conjunction with elevated mood) would result in less in-group favouritism. The third was that high subjective well-being (in conjunction with elevated mood) would serve as a buffer to psychological need threat following constant ostracism.

No support was found for the first and second hypotheses. Participants tended to evaluate the in-group less positively than the out-group. Moreover, those who were constantly ostracised were more likely to evaluate the in-group less positively than the out-group. Some support was found for the third hypothesis. Participants with high subjective well-being and who were constantly ostracised reported higher levels of control and meaning following exposure to comedy and music content. Contrary to expectations participants with higher (as opposed to lower) levels of well-being who were progressively ostracised also reported more positive feelings of control. These findings are consistent with Frederickson's (2001) broaden and build model which suggest that those with pre-existing levels of positive well-being can capitalize on a psychological reservoir of resources to further boost their well-being in times of stress.

Taken together Studies 1, 2 and 4 provide little consistent evidence for the idea that high levels of well-being would attenuate the expression of in-group favouritism. Study 1, revealed that men and women with lower levels of well-being tended to show more in-group favouritism. Study 2, revealed that amongst minimal group members (i.e., those identified as Klee's) the reverse pattern obtained. In this situation, it was those with higher levels of well-being who showed more in-group favouritism. Such findings point to the possibility that well-being may have different consequences for the expression of in-group favouritism amongst the members of real and minimal groups. This interpretation should however be treated with caution, and clearly requires additional research, in light of the fact Study 4 found no direct link between well-being and intergroup evaluations.

Studies 2 and 4 found no evidence to show that ostracism (progressive or constant) would lead to increased patterns of in-group favouritism. Indeed, in Study 4 participants tended to show out-group rather than in-group favouritism (i.e., evaluating Kandinsky's more positively than Klee's). These findings are at odds with a number of other studies that have shown that cyberball ostracism, as well as exclusion and other forms of marginalisation typically result in elevated forms of implicit in-group favouritism (Williams, Case & Govan, 2003), intergroup discrimination (Nesdale et al., 2010; Schaafsma & Williams, 2012), prejudice (Greitemeyer, 2012), category-based hostility (Gaertner, Iuzzini, & O'Mara, 2008) and the ostentatious display of in-group loyalty (Gomez et al., 2011).

A clear difference between the corpus of research referred to above and Studies 2 and 4, is that the latter were comprised of minimal groups and the former were comprised of real or more meaningful groups (i.e., based on religion, sports-team membership or nationality etc.). This distinction serves to show that context matters as regards the expression of in-group favouritism following exclusionary experiences. As such, the patterns of in-group favouritism that emerge when people are ostracised from important and meaningful groups may not appear when people are ostracised from artificial and less meaningful groups. Thus, participants who have just been subjected to exclusion in a cyberball ball tossing game, may very well respond with relatively low ratings of the in-group (in terms of their co-cooperativeness, helpfulness etc). Future research using both real and minimal groups should of course try and pinpoint the exact mechanisms (e.g., identification, need to belong) that both promote and inhibit the expression of in-group favouritism following inclusionary and exclusionary experiences.

Studies 2, 3, and 4 provided correlational evidence to show that well-being was associated with higher levels of psychological needs satisfaction. The higher one's subjective well-being, the greater was one's subjective sense of belonging, self-esteem, control and meaning. Such findings provided useful preliminary support for the idea that high levels of

well-being would serve as a buffer to protect threatened psychological (i.e., belonging, self-esteem, control and meaning). Studies 2 and 3 nevertheless failed to find any convincing evidence to support this assumption. Indeed, it was only with the addition of the mood manipulation in Study 4 that effects began to emerge. Moreover, these effects emerged only for participants whose well-being was already high and with respect to the two psychological needs of control and meaning.

These findings suggest that exposure to certain forms of media content (i.e., music and comedy) could protect some of the psychological needs (control and meaning) of those who are ostracized. These effects were, however, only evident for those with higher levels of baseline well-being. Furthermore, there was some evidence to suggest that music and comic content impacted different needs following different forms of ostracism. Music seemed to have more of a buffering effect than comedy. Music impact appeared to be more pronounced for the constantly ostracized, and not the progressively ostracized. However, as progressive ostracism was found not to be as potent as constant ostracism, it is possible that there wasn't the same necessity (i.e., as those who were progressively ostracized may not have felt as threatened to begin with).

Implications and Research Contribution

The findings discerned in the present thesis have a number of implications. In the first place the findings from Study 4 reveal that the negative effects of ostracism can indeed be moderated with pre-ostracism interventions, and as such are not as impervious to moderation as has largely been believed. Further, the results from Study 4 provide some insight into the means by which these effects might come about. It was, in effect, only those with high levels of well-being, exposed to pleasant media content, who reported higher needs satisfaction.

According to Timeo et al. (2019) it is as yet unclear as to whether specific strategies that might restore each of the four psychological needs (following ostracism) would influence

one specific need (e.g., control), or whether they would beneficial be for all (four) needs (i.e., belonging, self-esteem, control and meaning). The results of Study 4 speak to this issue, in so far as they suggest that music and humour, in conjunction with high well-being, impact on the two specific needs of control and meaningful existence. Timeo et al. in their review of social exclusion interventions also noted that social exclusion strategies differ significantly in terms of whether they are employed before or after the exclusionary event. The present research can be classified as a pre-ostracism intervention, and as such suggests that manipulations of this sort buffer people from the psychological threat of ostracism.

An additional contribution offered in the present thesis relates to whether it is useful to explore the existence of interventions that may be offered before ostracism occurs (Hales et al. 2016). Williams (2007), in an influential review, for example has argued that ostracism-induced distress is resilient to moderation by situational factors or individual differences. The findings from Study 4, which revealed that mood enhancing intervention protected control and meaning, however, functioned to undermine this view. These findings also have ramifications for those who argue that interventions produce better outcomes if they follow ostracism. Whilst this premise was not directly tested in Study 4, it is noteworthy that in this this study, I argued, and found support for an intervention that precedes ostracism. Further whilst, I acknowledge that further research in this area is warranted, the findings from Study 4 offer a response to Hales et al. (2016) who have questioned how any given ostracism intervention that promotes recovery would work. In essence, Study 4 revealed that for those higher in subjective well-being, the psychological threat from the exclusion experience was reduced by having watched comic or music content pre-ostracism. Hence these studies provide support for the idea that engaging in certain activities pre-ostracism can have protective benefits against ostracism.

A further contribution offered by the research conducted as part of this thesis relates to the findings of Study 3. Study 3 compared the effects of the progressive ostracism technique

developed by Lockenhoff et al. (2013) and the standard constant ostracism technique developed by Williams (2007, 2009) and Zadro et al. (2204). Study 3 revealed that although participants felt equally excluded when ostracised using each technique, they felt less included when constantly ostracised. Furthermore, constant ostracism resulted in lower levels of control and meaningful existence, but not belonging and self-esteem. These findings suggest that the constant ostracism technique utilised by Williams and his colleagues (Williams, 2007, 22009; Zadro et al., 2004) is relatively more potent for assessing the negative effects of ostracism than is the progressive technique developed by Lockenoff et al. (2013).

The fact that progressive ostracism appeared to have a less potent effect than did constant ostracism additionally raises the possibility that the greater one's level of initial inclusion the less the impact of subsequent ostracism. This point is underlined in Study 2 where participants who were being progressively ostracized via the 4, 3, 3, 2 sequence reported higher levels of perceived inclusion than participants who were being progressively included via the sequence 2, 3, 3, 4. Such findings have important ramifications for research that seeks to assess interventions that precede ostracism, in so far as they suggest that prior experiences of inclusion may potentially mitigate some of the negative effects of subsequent ostracism. Future research is of course necessary to address this eventuality.

A final contribution offered in the present research may be discerned from the findings of Study 1. Study 1 revealed that both men and women who showed in-group favouritism experienced increased feelings of well-being. Although the thesis was primarily concerned with the impact of well-being as a predictor of in-group favouritism, it is noteworthy that the findings from Study 1 are the first to demonstrate that the display of in-group favouritism can lead to increased levels of well-being. Moreover, in so far as study 1 additionally revealed that baseline levels of well-being were also associated with in-group favouritism future

research in this area might do well to experimentally manipulate well-being in order, to test the link between these two variables.

Limitations

One limitation in these studies is the arbitrary nature of the constructs under investigation. Subjective well-being and the psychological needs of belonging, esteem, control, and meaningful existence are measured by having participants rate where they lie on the given measures. These measures, although quantifiable and therefore comparable between participant and between groups, pose a challenge in how to translate scores to actual behaviour.

It may also be argued that there is little difference between subjective well-being, self-esteem, belonging, control, and meaning. However, research points to esteem, belonging, meaning and control being variables that affect subjective well-being. In the sense that when a person is evaluating how well their life is going, they consider the different aspects of it including events to do with esteem, belonging, control and meaning. So, they might consider say how well they are mastering new skills (esteem), how their social relationships are going (belonging), how much autonomy, choice, and freedom they have in life (control), and they may also consider their sense of purpose or existential aspects of their life (meaning). It is also likely that what is at the forefront for the person at any given time matters, and may override other aspects. So that perhaps all the freedom in the world might not mean much for a person who was most craving meaningful relationships, and a person could be surrounded by loved ones but crave personal space and autonomy, or have all the love in the world but be concerned about not getting into medical school under skill mastery. In essence there are many different routes to feed one's subjective well-being, and likewise many aspects of life that could affect it including esteem impacting events, quality of social contact, sense of control and meaning.

The ball tossing game technique used in Studies 2, 3, and 4 to manipulate social exclusion is also not without criticism. Hartgerink et al. (2015) in their meta-analysis of cyberball studies noted that the measures used are fundamental needs measures which have no proper psychometric validation despite their wide use. A challenge arose in the present research when the newly crafted cyberball technique by Lockenhoff et al (2013) was employed. Research by Lockenoff et al. revealed that the technique of progressive ostracism had relatively strong effects – especially with the type of participants used in the present investigation (i.e., students). Our findings however, revealed that this technique was not sufficiently threatening for the purposes that it was intended. Williams' (2007, 2009) technique was then employed in subsequent studies leading to mixed findings in the research. Nevertheless, new light was consequently shed on the differences between the two techniques.

Shortfalls of using music and humour as interventions are acknowledged, such as episodic memory being affected, and emotion being induced because the music evokes a personal memory of a specific event in the listener's life, (Juslin & Sloboda, 2010), and individual differences in the perception and appreciation of music and humour. The effects observed in these studies are therefore limited to the given music and comic content used, and cannot necessarily be generalised to all music and humour. Nevertheless, participants in these studies rated the comic and music content sufficiently favourably, and reported higher levels of control and meaning by those who had higher subjective well-being. It is also noted that the effects observed in Studies 2, 3 and 4 are limited to minimal groups and cyberball ostracism. People who belong to real groups may very well respond differently when ostracised, and if different forms of exclusion are evoked (face to face rejection, ghosting etc. may provoke different reactions).

One last limitation was the challenge in recruiting participants, and there being many people who had taken part in similar experiments. This resulted in the exclusion of a

relatively large number of participant data and hence a lowering of statistical power. Nevertheless, observed statistical power sufficed.

Future Research

The findings of the present thesis demonstrated that in study 1 (comprised of men and women) well-being appeared to buffer the effects of in-group favouritism. Subsequent studies (2 and 4) using minimal groups failed to replicate these effects. Such findings raise the possibility that subjective well-being may indeed buffer in-group favouritism amongst real but not minimal groups. Future work could explore this eventuality by assessing the extent to which memberships in other real social groups (based on nationality, ethnicity or religion) attenuates in-group favouritism.

Further although the research presented in this thesis was primarily concerned with the impact of well-being as a predictor of in-group favouritism, the findings from study 1 demonstrated that the display of in-group favouritism can lead to increased levels of well-being. In light of this finding, future studies might investigate how group membership might serve to increase well-being when members are given the opportunity to show loyalty or to contribute to the group in other ways (e.g., through the provision of resources to the ingroup members).

Lastly, in light of the fact that study 4 revealed that music and humour functioned to buffer the impact of ostracism on control and meaning, future research could benefit from the utilization of other pre-ostracism interventions that might impact other needs like self-esteem and belonging. Further, in future researchers would do well to specify which of the four psychological needs any given intervention aims to impact, as esteem, belonging, control and meaning appear to be impacted differently by different events, as well as people differing in how well they are meeting any one of the needs at any at any one time. Consideration should also be paid to the possibility, and current argument that increasing one need, likely increases

the other needs. So that if an intervention increased one's sense of belonging, it might also increase the person's esteem via the increased sense of belonging.

Conclusion

In conclusion, the present research makes a number of contributions as outlined below. New light has been shed on differences in ostracism techniques by Lockenhoff et al. (2013) and Williams (2007, 2009). The findings discerned in the present study are that the former appears to be a milder form of exclusion, while the latter more psychologically threatening. As such one can expect there to be differences in the impact of ostracism and social exclusion on individuals as a function of the severity of the ostracism or other exclusion event. It may very well be that people are not deeply affected by mild exclusions, and easily recover from these, but that they may experience more psychological suffering with severe and constant exclusion.

The mixed findings on subjective well-being buffering the expression of in-group favouritism following psychological threat serve to support the idea that how any one person will behave when faced with psychological threat is hard to predict. Whereas the men and women in real groups tended to show in-group favouritism when given the opportunity, participants in minimal groups who were excluded by their in-group (as in Study 4) appeared to take a retaliatory approach in giving low ratings to their in-group. Therefore, whereas it is expected that people will tend to favour the in-group when under psychological threat, they may very well retaliate against the in-group they perceive as having excluded and threatened their psychological needs, and care little about aggressing against an unknown out-group (at least in minimal groups). This serves to further highlight the need for research into the potential buffers and factors that moderate the negative effects of ostracism.

The present research provided support for the idea that subjective well-being functions as a buffer to ostracism. It further revealed some of the specific circumstances in which these

effects emerged (i.e., when bolstered via music and comedy). It also discerned some of the specific motives (i.e., control and meaning) that might be involved suggesting that some motives are impacted rather than others. As such, other interventions may very well restore other needs such as belonging and esteem (e.g. skill mastery).

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Appendix A

Participant Information Sheet and Consent Form

Games, Imagination, and Social Decisions Participation Information Sheet and Consent Form

Thank you for showing an interest in this project. Please read this information sheet carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you and we thank you for considering our request.

What is the Aim of the Project?

This study is being conducted in an attempt to better understand the processes by which people relate to themselves and others.

What Type of Participants are being sought?

Students.

What will Participants be asked to do?

Should you agree to take part in this project, you will be asked to engage in a series of written and perceptual tasks. These will involve brief social media-like tasks, self-perception, and social judgements. The project takes approximately 60 minutes to complete. There are no known or expected physical risks involved in this study. Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind.

What Data or Information will be collected and What Use will be made of it?

In an attempt to better understand the processes by which people relate to themselves and others, in this study, we are collecting information relating to individual self-perception, social judgement and behaviour. The results of this project may be published but any data included will in no way be linked to any specific participant. You are most welcome to request a copy of the results of the project should you wish. The data collected will be securely stored in such a way that only those mentioned below will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed.

Can Participants Change their Mind and Withdraw from the Project?

You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind.

What if Participants have any Questions?

Participants will be fully debriefed at the conclusion of the study. If you have any questions about the project, either now or in the future, please feel free to contact:

Elizabeth Okanga Or Dr. Jackie Hunter
Department of Psychology
University Telephone Number: 479-7619

Email Addresses: This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (ph +643 479 8256 or email gary.witte@otago.ac.nz). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

I have read the Information Sheet concerning this project and understand what it is about. All my questions have been answered to my satisfaction. I understand that I am free to request further information at any stage.

I know that:

1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;
3. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which they will be destroyed;
4. There are no known or perceived physical risks and harm involved in this study;
5. I will receive no payment for taking part in this project;
6. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but every attempt will be made to preserve my anonymity;
7. If I have any concerns or wish to discuss any aspect further related to this study, I will feel free to contact AP. Jackie Hunter (Tel: 479-7619), Email: @psy.otago.ac.nz

I agree to take part in this project.

Signed: Dated:

Appendix B

Participant Information and Consent for Online Experiment with Media Content

Games, Imagination, and Social Decisions Participation Information Sheet and Consent Form

Thank you for showing an interest in this project.

For this experiment you are required to have earphones or headphones connected to your computer, and to have them set at your preferred safe listening volume. Please check that these are working before you proceed.

Because some people with photosensitive epilepsy can be affected by displays that flicker, flash, or blink, those with this health condition are advised not to participate in this experiment as the media content may not be suitable.

Read this information section carefully before deciding whether or not to participate. If you decide to participate we thank you. If you decide not to take part there will be no disadvantage to you, and we thank you for considering our request.

Aim of the Project: This study is being conducted in an attempt to better understand the processes by which people relate to themselves and others.

What Type of Participants are being sought? Current or Previous Students.

What will Participants be asked to do? Should you agree to take part in this project, you will be asked to engage in a series of written and perceptual tasks. These will involve brief social media-like tasks, self-perception, and social judgement. You will also have some music and video clips to watch. The project takes approximately 30-45 minutes to complete. There are no known or expected physical risks involved in this study. Please be aware that you may decide not to take part in the project without any disadvantage to yourself of any kind. Participation terminates at any time the browser window is closed by you.

What Data or Information will be collected and What Use will be made of it? In an attempt to better understand the processes by which people relate to themselves and others, we are collecting information relating to individual self-perception, social judgement and behavior. The results of this project may be published but any data included will in no way be linked to any specific participant. The data collected will be securely stored in such a way that only those with official responsibility to analyse the data will be able to gain access to it. At the end of the project any personal information will be destroyed immediately except that, as required by the University's research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed.

Can Participants Change their Mind and Withdraw from the Project? You may withdraw from participation in the project at any time and without any disadvantage to yourself of any kind. To do this, simply close the browser window that the project is open in.

Your Consent: I have read the Information concerning this project and adequately understand what it is about. I know that:

1. My participation in the project is entirely voluntary;
2. I am free to withdraw from the project at any time without any disadvantage;

3. Personal identifying information will be destroyed at the conclusion of the project but any raw data on which the results of the project depend will be retained in secure storage for five years, after which they will be destroyed;
4. There are no known or perceived physical risks and harm involved in this study;
5. I will receive agreed payment for taking part in this project;
6. The results of the project may be published and will be available in the University of Otago Library (Dunedin, New Zealand) but my anonymity will be maintained.
7. I agree to take part in this project. (If you do not wish to take part in this study, simply close the browser window to the project). We thank you for either decision made.
8. I confirm that I do not have a health condition affected by computer or visual media use.

To proceed with the experiment, please click " Yes, I agree to take part in this study" option that is at the end of this block.

This study has been approved by the University of Otago Human Ethics Committee. If you have any concerns about the ethical conduct of the research you may contact the Committee through the Human Ethics Committee Administrator (+643 479 8256). Any issues you raise will be treated in confidence and investigated and you will be informed of the outcome.

Appendix C

White Noise Task

Decision Task:

On the following pages are a number of matrices. Each matrix consists of 13 columns. Each column contains 2 sets of numbers (one set is on top of the other). Imagine that the numbers represent time spent listening (in seconds) to the following noise. Your task is to allocate listening times to 2 different people. The times on the top row are given to one person. The times on bottom row are given to another person.
the content of this page with your own content.

top row is person H from the Klee group. **What is your choice?**

4	5	6	7	8	9	10	11	12	13	14	15	16
28	27	26	25	24	23	22	21	20	19	18	17	16

-- Select Here --

bottom row is person Y from the Kandinsky group.

top row is person R from the Klee group.

1	3	5	7	9	11	13	15	17	19	21	23	25
7	8	9	10	11	12	13	14	15	16	17	18	19

-- Select Here --

bottom row is person V from the Kandinsky group.

top row is person N from the Klee group.

19	18	17	16	15	14	13	12	11	10	9	8	7
1	3	5	7	9	11	13	15	17	19	21	23	25

-- Select Here --

bottom row is person E from the Kandinsky group.

top row is person I from the Klee group.

25	23	21	19	17	15	13	11	9	7	5	3	1
7	8	9	10	11	12	13	14	15	16	17	18	19

-- Select Here --

bottom row is person Y from the Kandinsky group.

Continue

Appendix D

Study 4 Comic and Music Content

D.1 Comic content

You Tube Videos:

1. Mr. Bean Airport police chase - Mission Impossible soundtrack hosted. Retrieved from

   https://www.youtube.com/watch?v=EKMWjyVja6Y&t=53s
   (Dirhaelar, 2012).

2. Mr Bean The Exam retrieved from https://www.youtube.com/watch?v=_Ot_vJLJ86M
   (Mr.Bean, 2009).

3. Mr Bean Judo Class retrieved from Mr. Bean Official

   https://www.youtube.com/watch?v=pRZqRjxkHpk
   (Mr.Bean, 2010).

D.2 Music content

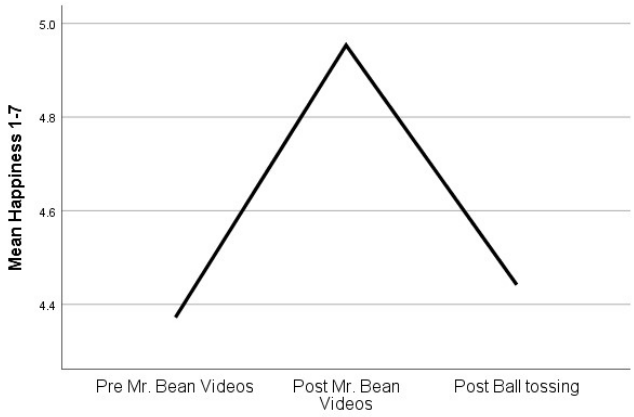
You Tube Videos:

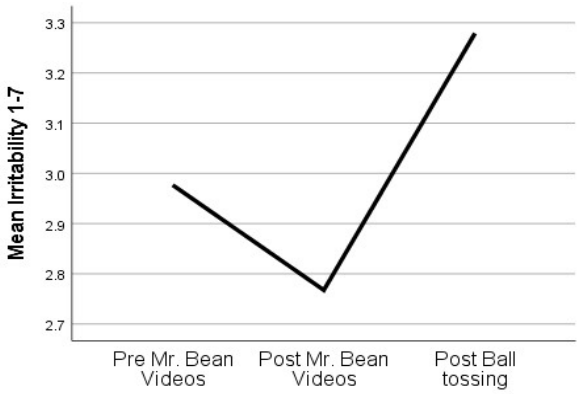
1. - Unforgettable ft. Swae Lee by French Montana. Retrieved from https://www.youtube.com/watch?v=CTFtOOh47oo
   (FrenchMontana, 2017).

2. Girls Like You ft. Cardi B by Maroon 5. Retrieved from https://www.youtube.com/watch?v=aJOTlE1K90k
   (Maroon5, 2018).

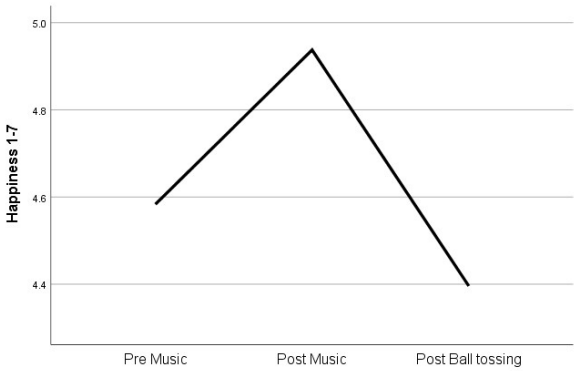
3. Good Life - Soundtrack from The Fate of the Furious by Kehlani & G-Eazy. Retrieved from https://www.youtube.com/watch?v=FG9M0aEpJGE
   (Kehlani, 2017).

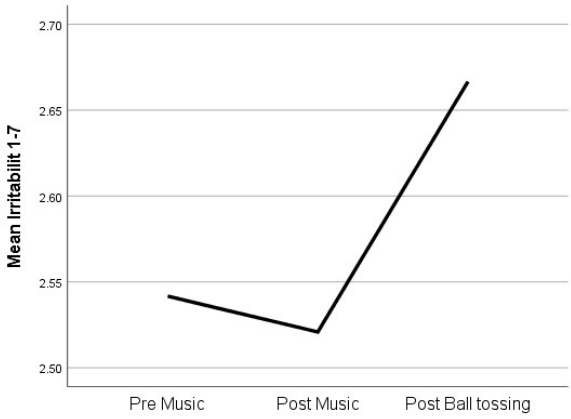
D.3 Mood changes pre and post comic relief





D.4 Mood changes pre and post music




Mean Irritabilit 1-7
2.70
2.65
2.60
2.55
2.50
Pre Music
Post Music
Post Ball tossing

Appendix E

Additional Well-being & Identification with the Klee Group Analyses

E.1 Additional well-being analyses in Study 2

Additional well-being scales in Study 2 were (i) the Kessler 10 Psychological Distress Scale (The K10), a measure of psychological distress (Sunderland, Mahoney, & Andrews, 2012), and (ii) Flourishing Scale (FS Scale) developed by Ed Deiner.

The K10 comprised 10 items (α = .89, n= 222), and included asking participants to rate statements such as 'In the past 4 weeks, how often did you feel tired out for no good reason', 'feel nervous that nothing could calm you down', 'feel hopeless' etc. Responses were scored on a 5-point Likert Scale (none of the time -1 to 5- all of the time) Total scores range between 10 and 50.

The Flourishing Scale consisted of 8 items (α = .89, n= 222). Participants rated statements such as 'I am optimistic about my future', 'I lead a purposeful and meaningful life'. Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree).

Identification with the Klee group was measured using 7 items adapted from Luhtanen and Crocker (1992) scale, developed to assess collective self-esteem consistent with social identity theory, based on membership in ascribed groups such as gender, race, religion, ethnicity and socioeconomic grouping. The scale comprised 7 items on identity with the Klee group (e.g., 'I'm a worthy Klee group member, α = .56, n= 222). Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree), with some items reverse coded.

The positive measures of well-being, WEMWBS Time 1 and the Flourishing scale were significantly positively correlated, $r = .79$, $p < .01$. WEMWBS and the K10 were significantly negatively correlated $r = -.62$, $p < .01$. These high correlations served to support construct validity of the well-being measures, as well as the rationale for linking psychological needs to well-being, and perceived inclusion and exclusion. The WEMWBS1 and WEMWBS2, as expected were significantly correlated, $r = .92$, $p < .01$. Only the WEMWBS was a repeated measure of well-being, and so the main measure used in the main analyses.

Well-being Scales Correlations in Study 2

Measure	M	SD	1	2	3
1. K10	20.81	6.72			
2.Flourishing	44.96	6.75	-.47**		
3. Wemwbs1	49.21	7.05	-.62**	.79**	
4. Wemwbs2	49.66	7.09	-.60**	.79**	.92**

There was significant negative correlation between baseline subjective well-being and white noise allocation to the in-group, ($r = -.13$, $N = 222$, $p < .05$, two tailed).

Well-being, Klee Identity & Noise Allocations in Study 2

Measure	M	SD	1	2	3	4	5	6
1. Wemwbs1	49.21	7.05						
2. Excluded	3.92	2.34	-.08					
3. KleeId	30.59	4.51	.25**	-.17*				
4. InNoise	156.28	26.88	-.13*	-.10	-.05			
5. OutNoise	154.30	18.70	-.07	.08	.047	-.20**		
6. InEval	116.02	20.31	.02	-.13*	.31**	-.07	.10	
7. OutEval	107.90	18.15	-.04	-.16*	.10	.25**	-.09	.40**

Perceived inclusion/exclusion. Main effects were found for well-being with respect to inclusion, F (5, 222) = 5.93, p = .016, η_p^2 = 0.027, but not exclusion, F (5, 222) = 2.00, p = .159, η_p^2 = 0.009. Planned comparisons conducted to assess these effects further revealed that participants with higher well-being tended to feel more included (M = 4.75, SD = 1.20 vs. 4.41, SD = 1.12).

Group Identity. To explore how identity with the experimental (Klee) group, perceived exclusion and in-group favouritism were related, we conducted correlational analyses between identity with the Klee group, perceived exclusion and in-group/out-group evaluations and white noise allocation. This revealed a significant negative correlation between perceived exclusion and in-group evaluations, (r = -.13, p = .047, N= 222, two tailed) and significant negative correlation with out-group evaluations as well, (r = -.16, p = .02, N= 222, two tailed). The more excluded one felt, the lower they evaluated the in- and out group. There were however no associations between perceived exclusion and noise allocated to the in- and out group.

There was also significant positive correlation between how highly one identified with the Klee group and how they evaluated the in-group (r = .31, p < .001, N= 222, two tailed). The more one identified with the 'Klee' in-group, the more positively they evaluated the in-group. No relationship was found between in-group identification and out-group evaluations (r = .10, p = .14 N= 222, two tailed). There was significant negative correlation between perceived exclusion and identification with the Klee group, (r = -.17, p = .01, N= 222, two tailed). The more excluded one felt, the less they identified with the group.

Improved subjective well-being. To check if the cyberball conditions and baseline well-being (high vs low) affected participant well-being at Time 2, a 2 x 6 MANOVA was conducted. A main effect was found for baseline well-being, F (5, 216) = 7.03, p = .009, η_p^2 = 0.032. No effect was found for cyberball conditions on well-being at Time 2, F (5, 216) = 1.98, p = .083, η_p^2 = 0.032.and no interaction between baseline well-being and cyberball condition, F (5, 216) = 7.03, p = .009, η_p^2 = 0.044. However, paired samples T-tests revealed an approach to significance for progressive overinclusion, ball receipt sequence 6,7,7,8, with an increase in well-being from (M= 49.67, SD = 7.22) to (M= 50.80, SD = 7.13), t (1, 29) = 1.97, p = .058.

E.2 Additional well-being analyses in Study 3

The K10 in Study 3comprised 10 items (α = .89, n= 185. The Flourishing Scale comprised 8 items (α = .88, n= 185).

Identification with the Klee group was measured using 7 items adapted from Luhtanen and Crocker (1992) scale. It comprised 7 items on identity with the Klee group (e.g., 'I'm a worthy Klee group member, $\alpha = .66$, n= 185). Responses were scored on a 7-point Likert Scale (strongly disagree -1 to 7- strongly agree).

A main effect was also found for well-being with respect to the composite psychological needs satisfaction, F (1, 183) = 23.85, p < .001, $\eta_p^2 = 0.12$. Planned comparisons conducted to assess these effects further revealed that, similar to Study 2, participants with high (as opposed to low) well-being had greater overall needs satisfaction (M = 88.68, SD = 21.76 vs. M = 74.78, SD = 16.64), t (185) = -4.88, p < .001. See Table below for mean psychological needs satisfaction for high and low well-being.

Table 3.4.
Mean Psychological Needs Satisfaction for High and Low Well-being in Study 3

Well-being	M	SD
Low	74.78	16.64
High	88.68	21.76

Note. Lower mean score represents higher psychological needs threat with a total possible score of 100.

Well-being, Belonging, esteem, control and meaningful existence. A main effect was found for well-being on belonging, F (1, 183) = 22.96, p < .001, $\eta_p^2 = 0.11$, Planned comparisons revealed that participants with high (as opposed to low) well-being had greater belonging (M = 21.43, SD = 6.21 vs. M = 17.58, SD = 4.63), t (183) = 4.79, p < .001.

A main effect was found for well-being on esteem, F (1, 183) = 31.68, p < .001, $\eta_p^2 = 0.15$. Participants with high (as opposed to low) well-being had greater esteem, (M = 24.96, SD = 6.13 vs. M = 20.19, SD = 5.36), t (183) = 5.63, p < .001.

A main effect was found for well-being on control, F (1, 183) = 6.14, p = .014, $\eta_p^2 = 0.032$. Participants with high (as opposed to low) well-being had greater control (M = 20.07, SD = 6.68 vs. M = 17.82, SD = 5.62), t (183) = 2.48, p = .014.

A main effect was found for well-being on meaningful existence, F (1, 183) = 9.77, p = 0.002, $\eta_p^2 = 0.051$. Participants with high (as opposed to low) well-being had greater meaningful existence (M = 22.23, SD = 7.23 vs. M = 19.19, SD = 5.92), t (183) = 3.13, p = .002.

Well-being, Inclusion/Exclusion, Belonging, esteem, control and meaningful existence: To assess the overall relationship between the variables of well-being, perceived exclusion, perceived inclusion, belonging, esteem, control and meaningful existence, and discrimination tasks, correlational analyses were carried out. Subjective well-being was highly correlated with the psychological needs of belonging, esteem, control and meaningful existence. Perceived inclusion and exclusion were also highly correlated to subjective well-being, as well as the psychological needs.

To assess if high and low well-being and cyberball feedback affected participants' perceptions of inclusion and exclusion, a 2 (well-being) x 4 (cyberball feedback) between groups MANOVA was conducted. A main effect was found for well-being with respect to exclusion, F (1,181) = 8.83, p = .003, $\eta_p^2 = 0.048$, but not inclusion, F (1, 181) = 2.94, p = .088, $\eta_p^2 = 0.016$. Participants with higher well-being tended to feel less excluded (M = 4.64, SD = 2.43 vs. 5.44, SD = 2.26), t (183) = -3.13, p = .002.

Identity and Perceived Exclusion. To explore how perceived exclusion was related to identifying with the (experimental) Klee group, we conducted correlational analyses. This revealed significant negative correlation between perceived exclusion and identification with

the Klee group, (r = -.44, p < .001, N= 185, two tailed). The more excluded one felt, the less they identified with the Klee group, similar to Study 2.

Improved subjective well-being. To assess potential changes in subjective well-being following the cyberball feedback, a 2 x 4 mixed model ANOVA was conducted. The first factor (baseline well-being) was within subject, and the second factor (cyberball feedback) was between subjects. This revealed a significant effect of cyberball feedback on well-being at Time 2, F (1, 181) = 5.63, p = .019, η_p^2 = 0.030. This effect was qualified by an interaction between the cyberball condition and baseline well-being (well-being at Time 1), F (3, 181) = 4.66, p = .004, η_p^2 = 0.072. Planned comparisons to further assess this effect further revealed one significant effect. Participants who were constantly included reported an increase in subjective well-being from (M = 44.5, SD = 9.59 to M = 46.57, SD = 9.65), t (1, 43) = 3.97, p < .001. No significant effects were found in any of the other conditions (all other p's >.083).

E.3 Additional Well-being analyses in Study 4

Identity, Perceived Exclusion & In-group Rating: To further explore the unexpected finding of lower in-group rating, we conducted correlational analyses between perceived exclusion and in-group/out-group evaluations. This revealed a significant negative correlation between perceived exclusion and in-group evaluations, but not out-group evaluations, (r = -.51, N= 238, p < .001, and r = -.01, N= 238, respectively, two tailed). The more excluded participants felt, the lower they evaluated the in-group. This finding is similar to Study 2 where the more excluded participants reported feeling, the lower ratings they gave to the in-group. Perceived exclusion did not, however, affect evaluations of out-group members. This is different from Study 2 where the more excluded participants felt, the lower they rated the in-group as well as the out -group.

There was also significant correlation between how highly one identified with the experimental (Klee) group and how they evaluated the in-group (r = .42, N= 238, p < .001, two tailed). The more one identified with the 'Klee' in-group, the more positively they evaluated the in-group. This identification did not, however, affect out-group evaluations (r = .01, N= 238, two tailed). These two findings are similar to Study 2 where the more one identified with the Klee group, the more positively they rated the in-group, and higher identification with the Klee group did not affect out-group evaluations. We conducted further correlational analyses between in-group identity, perceived exclusion and in-group evaluations, See Table 4.7. There was significant correlation between perceived exclusion and identification with the experimental (Klee) group, (r = -.39, N= 238, p < .001, two tailed). The more excluded one felt, the less they identified with the Klee group, similar to Study 2.

Identity, Perceived Exclusion, and Evaluation Correlations in Study 4

	1	2	3
Klee Identity			
Exclusion	-.39**		
In- group Evaluations	.42**	-.51**	
Out-group Evaluations	0.01	-0.01	-0.08

Notes. N = 185 *$p < 0.05$ **$p < 0.01$

Identity, Well-being & Perceived Exclusion: Similar to Studies 2 and 3, to assess how high and low well-being, level of exclusion, and media type, affected participants' identification with the Klee group, a 2 (well-being: high vs. low) x 2 (exclusion level; full vs mild) x 3 (media type: none, comic and music) between subjects ANOVA was conducted. A

main effect was found for found for well-being on level of identity with the Klee group, F (1, 225) = 7.26, p = .008, η_p^2 = 0.031, and perceived exclusion, F (1, 225) = 34.17, p < .001, η_p^2 = 0.13. An effect approaching significance was found for level of exclusion, F (1, 225) = 3.56 p = .061, η_p^2 = 0.016. To further explore these effects, we conducted correlational analyses. Although there was no significant correlation between baseline well-being and how excluded participants felt (r = -.05, N= 238, two tailed), there was significant correlation between baseline well-being and identification with the Klee group, (r = -.23, p < .001, N= 238, two tailed). The higher one's well-being was, the more highly they identified with the group despite being excluded in the cyberball game. Planned comparisons revealed that those who were fully excluded, but had higher well-being, identified significantly more with the Klee group, (M = 29.37, SD = 6.49), than did those who had lower well-being, (M = 26.00, SD = 4.68), t (111) = 3.14, p = .002. There were however, no significant differences in level of identity with the Klee group for those who were mildly excluded whether they had high or low well-being, (M = 30.26, SD = 5.56 vs M = 29.20, SD = 5.57), t(123) = 1.06, p = .29.

Appendix F

Normality Tests

F.1 Study 1

Skewness & Kurtosis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
In-group Evaluations	814	88.00	240.00	156.1290	23.59403	.484	.086	1.118	.171
Outgroup Evaluations	814	40.00	240.00	144.7592	23.38492	-.148	.086	2.881	.171
Time 1 Well-being	814	5.00	35.00	19.2678	7.33218	-.040	.086	-.807	.171
Time 2 Well-being	814	5.00	35.00	19.6007	7.68389	-.081	.086	-.887	.171
Valid N (listwise)	814								

F.2 Study 2

Skewness & Kurtosis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Well-being Time 1	222	29.00	67.00	49.2072	7.05456	-.291	.163	.104	.325
Well-being Time 2	222	27.00	67.00	49.6577	7.08704	-.358	.163	.045	.325
Inclusion	222	5.00	35.00	22.6577	5.13086	-.564	.163	.569	.325
Belonging	222	7.00	35.00	22.5586	4.99264	-.241	.163	-.201	.325
Esteem	222	8.00	28.00	20.3288	4.57862	-.395	.163	-.313	.325
Control	222	7.00	31.00	19.7568	4.37644	-.205	.163	-.032	.325
Meaning	222	8.00	35.00	23.9009	5.38971	-.644	.163	.173	.325
In-group Noise	222	72.00	240.00	156.2793	26.87988	-.745	.163	1.286	.325
Outgroup Noise	222	92.00	202.00	154.2973	18.70325	-.331	.163	1.051	.325
In- group Eval	222	48.00	180.00	116.0180	20.31026	.662	.163	1.216	.325
Outgroup Eval	222	27.00	180.00	107.8964	18.14729	.897	.163	4.721	.325
Exclusion	222	1.00	9.00	3.9234	2.33960	.256	.163	-1.161	.325
Valid N (listwise)	222								

F.3 Study 3

Skewness & Kurtosis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Exclusion	185	1	9	5.04	2.370	-.270	.179	-.943	.355
Inclusion	185	1	9	4.61	2.195	.164	.179	-.835	.355
Well-beingTime1	185	14.00	64.00	44.8595	8.72725	-.134	.179	.117	.355
Well-beingTime2	185	20.00	66.00	45.4541	9.10442	-.052	.179	-.275	.355
Belonging	185	7.00	32.00	19.4973	5.78710	-.015	.179	-.808	.355
Esteem	185	10.00	35.00	22.5622	6.21601	.172	.179	-.802	.355
Control	185	5.00	33.00	18.9351	6.25683	-.291	.179	-.412	.355
Meaning	185	5.00	35.00	20.7027	6.75770	-.020	.179	-.496	.355
Valid N (listwise)	185								

F.4 Study 4

Skewness & Kurtosis

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Exclusion	238	1	9	5.95	2.250	-.728	.158	-.312	.314
Inclusion	238	1	9	3.96	2.094	.720	.158	-.127	.314
Well-being1	238	21.00	68.00	46.4160	9.23848	-.196	.158	-.269	.314
Well-being2	238	17.00	70.00	46.3025	9.69584	-.064	.158	-.124	.314
Belonging	238	5.00	35.00	18.9034	5.35286	.263	.158	-.103	.314
Esteem	238	8.00	35.00	22.0924	6.56097	.113	.158	-.715	.314
Control	238	5.00	35.00	17.4580	5.62359	.268	.158	-.195	.314
Meaning	238	5.00	35.00	19.8571	6.69188	.100	.158	-.475	.314
In-group Eval	238	61.00	139.00	95.6555	10.46992	.039	.158	1.186	.314
Outgroup Eval	238	79.00	122.00	100.9286	6.77666	-.181	.158	1.093	.314
Valid N (listwise)	238								