TERROR MANAGEMENT THEORY: THE INFLUENCE OF SALIENT GROUP NORMS, ACTIVE SOCIAL IDENTITIES AND IN-GROUP IDENTIFICATION ON THE RELATIONSHIP BETWEEN MORTALITY SALIENCE AND BIAS

by

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Terror management theory: The influence of salient group norms, active social identities and in-group identification on the relationship between mortality salience and bias

Abstract

Terror management research has shown that mortality salience leads to especially positive reactions towards similar others and to especially negative reactions towards different others. The present research consists of six studies that investigate the influence of salient group norms, salient identities and in-group identification on the effects of mortality salience. In-group norms of collectivism and individualism were manipulated in Study 1, whereas in-group norms of fairness and discrimination were manipulated in Study 2. Study 3 manipulated out-group norms of fairness and discrimination. The results of these studies provided evidence that the content of salient in-group and out-group norms moderates the effects of mortality salience on bias. A mortality salience induction led to greater inter-group bias when salient norms prescribed collectivism and discrimination, as opposed to individualism and fairness respectively. Support to the view that death reminders can increase adherence to group norms was also provided. Studies 4-6 focused on the role of salient identities and group identification on the effects of mortality salience. Study 4 primed English and student identities in a cross-categorization setting, whereas Study 5 primed English and European identities in a re-categorization
setting. In Study 6, in-group identification was measured. It was demonstrated that salient social identities moderate the effects of mortality salience on bias, whereas in-group identification does not. In Study 4, English students for whom mortality was salient displayed more bias toward Scottish students when the active identity was English as opposed to students. Study 5 showed that English that were reminded of their mortality displayed more bias toward French people when the salient identity was English than when it was Europeans. In Study 6, mortality salience led to increased inter-group bias irrespectively of participants’ level of in-group identification. Discussion focuses on potential explanations, implications and future directions.
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Dedicated to my parents Antonio and Kelly the existence of which is priceless to me.
Author's Declaration

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Chapter 1 – Literature Review

1.1. Social Identity Theory

1.1.1. Overview of social identity theory

In order for people to understand the social world, they divide it into a number of categories. The act of categorizing oneself in some groups but not others constitutes the basis of social identities. A social identity has been defined as “that part of an individual’s self-concept which derives from his knowledge of his membership of a social group (or groups) together with the value and emotional significance attached to that membership” (Tajfel, 1978, p.p. 63).

Social identity theory (SIT; Tajfel, 1978) focuses on the implications of group membership for inter-group behavior. The theory initially aimed to explain inter-group discrimination in the “minimal group paradigm” in which participants are typically allocated to meaningless groups and are asked to distribute money or points to in-group and out-group members referred to by code numbers.

In one of the first minimal group studies (Tajfel; Billig, Bundy and Flament, 1971, Study 2), participants were randomly assigned to one of two categories supposedly depicting their aesthetic preference of a set of paintings. Then, participants were asked to allocate points between two anonymous members of each group on the basis of a set of matrices designed to measure inter-group discrimination.

Overall, it was found that participants favored the in-group members at the expense of the out-group members. Furthermore, they chose to allocate points in a way that maximized the difference of awards between the two individuals to whom the choice...
pertained. This strategy was preferred to merely allocating the highest number of points to the in-group members, which would result in the absolute gain to their group. Thus, it seems that the mere awareness of social category membership can lead to inter-group discrimination – the act of favoring the in-group against the out-group.

Based on the above finding, it has been suggested that the process of social categorization creates a social identity, which is a part of one's self-definition or self-concept. In addition, people have a need for a positive identity and to the extent that they evaluate themselves in terms of their category memberships, this need is expressed through favorable comparisons of relevant in-groups versus relevant out-groups. Inter-group comparisons are critical to individuals, because they contribute to their self-esteem. As a result, these comparisons tend to be biased (Tajfel, 1978): Thus, a central idea of SIT is that people need to view the in-group and in effect, themselves positively and that this desire motivates biased inter-group comparisons.

According to Abrams and Hogg (1988), discrimination can be viewed as an effort to raise self-esteem and self-evaluation. The self-esteem hypothesis has received substantial support. Oakes and Turner (1980), for example, examined the relationship between self-esteem and inter-group discrimination in a minimal group setting. Subjects were initially divided into two groups supposedly on the basis of their preferences on unidentified paintings. Then, some of them were asked to allocate points to anonymous pairs of in-group and out-group members by completing a set of matrices designed to measure in-group bias. Finally, all subjects' self-esteem was measured.

The authors found that participants who were asked to distribute points to others favored their in-group and reported higher self-esteem than those who did not have the option.
chance to complete the matrices. The finding that inter-group discrimination can increase self-esteem is consistent with the proposition that it is motivated by the need for positive self concept.

Another central part of SIT is the hypothesis of the inter-personal-inter-group continuum (Tajfel, 1974). According to this hypothesis, social conduct varies along a continuum from inter-personal to inter-group. At the inter-personal extreme, it is the personal relationships amongst the individuals that determine their behavior, whereas at the inter-group extreme social encounters are determined by the individuals’ group memberships.

1.1.2. Self-categorization theory

An implication of the inter-personal-inter-group hypothesis is that it makes a distinction between individual and group behavior. Within self-categorization theory (SCT; Turner, 1982), this distinction is explained in terms of personal and social identity. Personal identity refers to self-definitions in terms of personal attributes, whereas social identity refers to self-definitions in terms of social category memberships. Furthermore, personal and social identities represent different levels of self-categorization, with social identities being a more inclusive level of self-perception.

According to the theory, self-categorization is a process that leads to the depersonalization of the self, where individuals define themselves in terms of group memberships. Self-definitions in terms of group memberships enhance both individuals' perceptual similarity with other in-group members as well as their perceptual contrast between in-group and out-group members. Moreover, the self-categorization process is a
context-dependent one and the factors that affect the salience of any level of self-categorization are the category accessibility or perceiver readiness and category fit. Category accessibility is a term referring to the readiness of an individual to use a particular categorization, whereas category fit refers to the category that best fits the particular situation an individual encounters (Turner et al., 1987). Those two concepts are related to each other, as the properties of a particular situation affect and are affected by the individual's personal disposition. Thus, people can categorize themselves and others differently depending on personal and contextual factors. For example, a University of Plymouth student that is English may categorize oneself as English when visiting another country or as a University of Plymouth student when visiting another university. Consequently, inter-group bias can be influenced by the salience of a category as well as by the personal importance of a group membership.

1.1.3. Group identification and in-group bias

According to SIT, the level individuals identify with their group depends on the importance of group membership for the self-concept (Tajfel and Turner, 1986). In addition, in-group bias is motivated by group members' need to establish a positive identity. Thus, it can be predicted that high identifiers should favor their own group over the out-group more than low identifiers. The relationship between strength of identification and inter-group differentiation has been examined in a number of studies. Kelly (1988), for instance, conducted a study on inter-group discrimination in a political affiliation context. Participants were first asked to state the political party they supported, as well as the degree they valued and felt attached to it. Then, they rated
number of political parties, including their own, by stating, for example, how pleased they would be at the prospect of meeting a supporter of each of the parties and how much sympathy they had with the views expressed by those parties. It was found that the higher the level of in-group affiliation, the higher the level of inter-group discrimination as well. This finding supports the view that group identification is a predictor of inter-group discrimination.

However, it should be noted that the studies focusing on the relationship between identification and in-group bias have not produced consistent results. Brown et al. (1986), for example, examined the predicting power of group identification on inter-group differentiation in an occupational setting. In this study; factory workers from five different departments were presented with a series of items aiming to measure the level of identification with their department. Then, in order to measure inter-group differentiation, participants were asked to estimate the contribution of their own group, as well as the other four groups involved in the study, to the organization.

The researchers found that group identification was an inconsistent predictor of inter-group differentiation. Specifically, there was only a weak relationship between these two constructs with group identification consistently predicting inter-group differentiation in only two of the five subgroups involved in the study. As the authors suggest, group identification seems to have a multidimensional character and due to the wide range of meaningful aspects of group members' identities, the complexity of the relationship between identification and inter-group bias cannot be captured by simply searching for a positive correlation between the two constructs. Furthermore, as Kelly (1988) has suggested, the relationship between group identification and in-group bias
may depend on contextual factors, with different inter-group settings reminding group members of different group attributes. For instance, political settings are more competitive by nature, whereas occupational settings are more cooperative by nature. As a result, political settings may allow for greater expression of inter-group differentiation. Thus, a potential reason for the inconsistent relationship between identification and in-group bias may be the specific group norms that become salient in different inter-group settings.

### 1.1.4. Group norms and inter-group bias

A main tenet of SIT is that each group's behavior is influenced by a system of social norms that are based on their values, goals and beliefs. A social norm has been defined as "a generally accepted way of thinking, feeling or behaving that is endorsed and expected because it is perceived to be the right and proper thing to do. It is a rule, value or standard shared by members of a social group that prescribes appropriate, expected or desirable attitudes and conduct in matters relevant to the group" (Turner, 1991, p. 3). Group norms are believed to serve important functions both for individuals and for the group itself. For example, due to their relation to group goals, social norms can regulate group members' behavior by encouraging goal-oriented actions and discouraging inhibitory behaviors. In addition, norms may enhance or maintain one's group identity as they help to distinguish in-group members from out-group members (Brown, 2000).

According to SIT, category salience leads to behaviors consistent with the norms associated with that category (Tajfel and Turner, 1986). Since, compared to low...
Identifiers, high identifiers perceive their group membership as more important, high identifiers should be more likely to adhere to salient norms than low identifiers.

In order to test this assumption, Jetten, Postmes and McAuliffe (2002, Study 1) conducted a study in which participants were either Americans or Indonesians. After their national group identification was assessed, they were provided with a scale that measures individualism and collectivism (Triandis, McCusker and Hui, 1990) and includes items such as "One should be independent of others as much as possible" and "Children should live at their parents' home until they are old enough to get married". Individualism is a term associated with differentiation of oneself from others and prioritization of personal goals over group goals, whereas collectivism refers to emphasizing group harmony and prioritizing collective goals over personal ones (Triandis, 1995). It should be noted that USA's and Indonesia's cultures are considered to be individualist and collectivist respectively (Hofstede, 1984).

The researchers found that those who identified highly as Americans were more likely to endorse individualism than those whose national identification was weaker, whereas highly identified Indonesians were less likely to endorse individualism than low identified Indonesians. Moreover, Indonesians who identified highly with their national identity scored higher on collectivism than low identified Indonesians. However, there were no differences amongst American participants' scores on collectivism, probably due to the fact that collectivism is not a particularly important value within the American culture. Overall, the above results support the view that high identifiers are more likely to adhere to salient group norms than low identifiers.
In order to replicate the findings of the aforementioned experiment, the researchers carried out a study (Jetten et al., 2002, Study 2) in which the content of group norms was manipulated. In this study, university students were first asked to think of themselves as employees of an organization. After their identification level with that organization was measured, they were told to read a paragraph that depicted the culture of that organization either as individualist or as collectivist. Following the group norm manipulation, self-stereotyping was assessed by asking participants to indicate the extent to which the traits individualism and collectivism applied to themselves.

It was found that only high identifiers endorsed the salient group norm, as they perceived themselves as more collectivist when the group norm represented collectivism and defined themselves as more individualist when the group norm was individualism. This finding provides further evidence that supports the view that levels of group identification affect individuals' conformity to salient norms.

The role of the content of salient group norms and levels of identification on ingroup bias has also been examined by Jetten, Spears and Manstead (1997). In their study, psychology students' level of identification with their department was manipulated by asking them to tick a set of statements that applied to themselves. Those in the low identification condition were provided with moderately negative and extremely positive statements, whereas those in the high identification condition were provided with extremely negative and moderately positive attributes. It was expected that participants in the low identification condition would be less likely to endorse extremely positive or negative statements than moderately positive or negative ones. As a result, participants in the low identification condition would eventually think that negative statements apply more to themselves than positive.
ones and those in the high identification condition would believe that positive statements are more applicable to themselves than negative ones.

After the linguistic manipulation, participants were presented with the results of a bogus study on psychology students of their university. Fairness was manipulated by providing false feedback stating that psychology students were mostly concerned about the well-being of students from other majors, whereas differentiation from the out-group was manipulated by stressing that the study had shown that psychology students were mostly interested in benefits for themselves. Finally, in-group bias was measured by asking participants to allocate resources between psychology, physics and economics students.

The researchers found that, compared to low identifiers, high identifiers were more likely to endorse the norm representing differentiation. This result is consistent with the proposition that the content of salient group norms can regulate in-group bias amongst those who identify strongly with their group. However, it should be noted that when the salient norm was fairness, there were no differences between high and low identifiers. As the authors argue, high identifiers' tendency to display in-group bias may have conflicted with their motivation to act in accordance with group norms.

Further evidence supporting the view that salient group norms influence bias was provided by Jetten, McAuliffe, Hornsey, and Hogg (2006, Study 1). In this experiment, students were first led to believe that they would be randomly categorized into one of two fictional companies and then they were all categorized as members of the same company. In order to increase their identification with the company, they were separated in small groups and asked to create a logo for the company. Then participants were separated and...
asked to read a paragraph outlining the main characteristics of the company. Those in the collectivist condition read that the workplace and employees of that company had a collectivist orientation, whereas those in the individualist condition were led to believe that the workplace and the company’s employees had an individualist orientation. After the group norm manipulation, participants were instructed to allocate funds between the two companies involved in the study as well as between themselves and a fellow in-group member. Those were the measurements of inter-group differentiation and inter-individual differentiation respectively.

The researchers found that inter-group differentiation was higher when group norms endorsed collectivism than when they prescribed individualism. In addition, inter-individual differentiation was higher when the salient norm was individualism than when it was collectivism. These results indicate that the content of salient group norms can affect the level at which differentiation is expressed.

In order to examine the psychological mechanisms underlying the effect described above, the authors conducted another study in which group salience was also manipulated (Jetten et al., 2006; Study 3). To the extent that group norms influence people’s behavior, when group membership is salient, the manipulation of individualism should increase inter-individual differentiation when the group is a salient basis for self-categorization. However, if the salience of group identity has no effect on inter-individual differentiation, then that would indicate that the manipulation of individualism triggers de-categorization.

Participants of this study were university students that were led to believe that their group had either an individualist or a collectivist normative orientation. Following the group norm manipulation, category salience was also manipulated as participants...
were asked to think of themselves either as members of the student group or as unique individuals. So, in the high group salience condition, participants were told to list up to three attributes that they had in common with other members of their group, whereas in the low group salience condition they were asked to report up to three reasons that make them different from others. Finally, inter-individual and inter-group differentiations were measured by asking them to distribute funds between themselves and other fellow group members and between their group and another university respectively.

The researchers found that inter-group differentiation was higher when the group norm was collectivism rather than individualism, whereas inter-individual differentiation was stronger when the group norm was individualism rather than collectivism. Furthermore, high group salience exacerbated inter-individual differentiation. This is an important finding, because it indicates that the inter-individual allocations were influenced by conformity to salient group norms, rather than by a reduction of group salience—a process similar to de-categorization. However, category salience did not interfere with the induction of collectivist norms; since inter-group differentiation was not affected by group salience. As the authors speculate, this might have been due to the strength of the social norm manipulation relative to the category manipulation. Nevertheless, overall, the above findings suggest that differentiation can be regulated by the content of group norms as well as conformity to individualist and collectivist norms within the group.

It is important to note that even though individualism as a group norm can reduce inter-group discrimination, it does not satisfy the fundamental drive for positive differentiation as it increases inter-individual competition. Hence, individualist social
norms can have negative effects on intra-group dynamics and threaten the group’s unity and harmony. Thus, it seems more proper to introduce norms endorsing fairness in order to reduce any level of positive differentiation (Jetten et al., 2006).

This was done by Jetten, Spears and Manstead (1996, Study 2) in a study that explored the influence of group norms on in-group bias. In this experiment in-group and out-group norms were both manipulated. Specifically, students of a Dutch university were led to believe that their group was either discriminatory or fair towards students of a rival university and that the out-group members, namely the students of the other university, were either fair or discriminatory towards them. After the group norm manipulation, in-group bias was measured as participants were asked to distribute money between the two groups involved on the basis of a set of allocation matrices.

The researchers found that participants’ level of in-group bias was highest when both in-group and out-group norms prescribed discrimination. In addition, in-group bias and out-group discrimination were reduced when either the in-group norms or the out-group norms or both of them implied fairness. Based on these results it can be concluded that the content of both in-group and out-group norms can moderate inter-group bias.

Even though salient group norms can reduce in-group bias, according to SIT the mere categorization process can be enough to trigger discrimination (e.g., Tajfel, Flament, Billig and Bundy, 1971). This proposition has inspired a number of social psychologists to focus on ways to reduce or eliminate inter-group bias. Such attempts have led to the creation of models aiming to reduce or eliminate inter-group discrimination by changing the structure of social categorizations.
1.1.5. Cross-categorization

One of these models is the cross-categorization model (Doise, 1976) which is based on the idea that most inter-group contexts involve several categories that may coincide or cut across each other. According to Doise, when people find themselves in situations of encounter or symbolic encounter between two groups, they may belong to one group in some respect and to the other group from another perspective. For example, if black men encounter white men, then they will be classified on two dimensions, namely race and gender, which cut across each other. Therefore, they can either be classified as members of two different groups (race) according to one categorization or they can be perceived as members of the same group (gender) according to another categorization. Thus, others may be categorized as in-group members on one dimension and out-group members on another. Doise referred to situations in which there is a clear and radical dichotomy between group memberships as simple categorizations and situations in which the dichotomy between the group memberships may vary depending on the system of categorizations as crossed categorizations.

The main tenet of the cross-categorization model is that when two categories cut across each other, then there should be an accentuation of both the similarities and the differences between the two categories. The simultaneous operation of the opposing processes between and within category processes should cancel each other out and decrease the extent of categorical differentiation and inter-group discrimination. There is evidence that supports this proposition.

Deschamps and Doise (1978, Study 1) for example, tested the above hypothesis by asking girls aged between 13 and 15 to describe a set of groups on the basis of a list of...
stereotypes applying to Americans. Participants in the simple categorization condition were told to characterize females, males, young people and adults, whereas those in the cross-categorization condition were asked to describe young people of female sex, young people of male sex, female adults and male adults.

Overall, the researchers found that participants evaluated people that belonged to the same category (females, young people, young people of female sex) and those that belonged to the same category in one dimension but not in another (young people of male sex, female adults) more positively than those that belonged to strictly dichotomous categories (males, adults, male adults). This finding supports the view that when at least two categories cut across each other, then a common membership becomes salient and as a result, inter-group discrimination is reduced. Nevertheless, it should be noted that in the cross-categorization condition, inter-group discrimination was reduced between the partly overlapping groups, but not between the groups that differed from each other on both categorization criteria.

Similar effects were obtained in an experiment that examined cross-categorization within the minimal group paradigm (Ensari and Miller, 2001). In this study female students were divided into four groups on the basis of their alleged performance on a dot estimation task (overestimators vs. underestimators) and their preference between two artists (Mondrian vs. Kandinsky). Thus, each group represented different combinations of the two category dimensions. After each team worked on a task, inter-group bias was measured by asking group members to rate all other participants on the basis of a set of evaluative traits. Once again, it was found that participants' evaluations of partly overlapping groups were more positive than their evaluations of strictly dichotomous
groups. In addition, their evaluations of those that belonged to the same category in both dimensions were the most positive ones.

Despite the evidence that supports this model, there is also evidence suggesting that the effects of cross-categorization may be weakened due to contextual factors that cause one category dimension to dominate over others. Hewstone, Islam and Judd (1993, Study 1) for example, conducted a study in Bangladesh where the critical dimensions were religion and nationality. The Bangladeshi participants were either Muslims or Hindus and they were asked to evaluate on the basis of a set of positive and negative adjectives one of four groups: Hindu Bangladeshis, Muslim Bangladeshis, Hindu Indians, and Muslim Indians.

The researchers found that participants' evaluations were influenced more by religion than by nationality, as Muslims derogated their Hindu compatriots more than Muslim Indians and Hindus derogated Muslim Bangladeshis more than Hindu Indians. Moreover, people of a different religion and nationality were derogated the most. This finding provides evidence that the cross-categorization strategy cannot eliminate all manifestations of inter-group discrimination.

1.1.6. De-categorization

Another model that has been developed in order to tackle the problem of inter-group bias is the de-categorization model (Brewer and Miller, 1984). This model is based on the idea that since social categorization produces discrimination, inter-group relations could be improved by reducing the salience of existing social categories. According to Brewer and Miller's de-categorization model, categorization can be eliminated when
group members adopt an interpersonal focus rather than a category-based focus. In this way, bias can be reduced by eliminating the importance of category identities and representing an inter-group situation as one involving individuals rather than group members. Thus, any interaction, real or symbolic, amongst members of different groups will occur on an interpersonal level and instead of focusing on group-based stereotypical information that may be related to the out-group, they should pay more attention to the idiosyncratic information regarding each person. In other words, inter-group bias can be reduced or even eliminated by emphasizing the group members' personal identities and de-emphasizing their social identities.

1.1.7. Re-categorization

Whereas de-categorization seeks to reduce inter-group bias by eliminating categorization, re-categorization (Gaertner et al., 1993) aims to alter the type of categorizations that are used. This model, also referred to as the common in-group identity model, is based on the idea that people belong to several social categories and as a result, they have a number of social identifications. Furthermore, each category has several levels of inclusiveness and only one of them can be salient at any given time.

The re-categorization model seeks to reduce inter-group bias by changing members' perceptions of group boundaries and creating, at a more inclusive superordinate level, a common in-group identity. For example, in Northern Ireland, Catholics and Protestants, two groups that are hostile to each other, may be united when their national football team plays against England. The common in-group identity model emphasizes the importance of cognitive representations of a situation, by proposing that
inter-group bias can be reduced when a situation is represented as one involving a single
group rather than two groups. Once the two groups are included within the super-ordinate
group, bias should be reduced by increasing the attractiveness of former out-group
members. Thus, according to their model, the salience of a super-ordinate category that
includes the problematic subgroup divisions will reduce or eliminate inter-group bias,
since individuals that were previously perceived as members of the out-group will be
seen as fellow in-groupers instead:

The effects de-categorization and re-categorization on inter-group bias were
examined in a study (Gaertner et al., 1989) where members of two different groups were
induced to conceive themselves either as members of one super-ordinate group or as
separate individuals. Specifically, participants were randomly assigned to one of two
groups and after they were asked to create a name for their group, they were presented
with a practical problem that required them to interact with each other in order to reach a
consensus solution. Then, participants were assigned to one of three conditions that
involved different seating arrangements and were told to reconsider the same problem.
Specifically, in the one-group condition, designed to facilitate the re-categorization
strategy, members of two groups were seated alternately around a table, whereas in the
two-group condition, they were seated at adjacent locations on either side of the table. In
the separate-individuals condition, designed to test the de-categorization strategy, each
participant was led to a separate cubicle. Moreover, in the one-group condition
participants were asked to create another name for the new group and to reach a
consensus solution regarding the problem. Participants in the two-group condition
maintained their previous group names throughout the interaction and described the
solutions they had previously reached to the members of the other group. In the separate-individuals condition they were instructed to create a new name for themselves and to compose a personal solution to the problem. Then they were led to another room, were seated on separate square tables and were told to describe their solution to other participants. Following those interactions, all participants were presented with an inter-group bias measurement that required them to evaluate each individual as well as the interaction itself on the basis of a set of positive and negative traits.

The results of this study indicated that participants in the one-group and the separate-individuals conditions exhibited less inter-group bias compared to those that maintained their original two-group categorization. Even though the evaluations of the interaction as well as of other participants were more positive in the re-categorization and decategorization conditions when compared to the control condition, it should be noted that one-group representations reduced inter-group bias significantly more than did the separate-individuals representations. Hence, it seems that despite the fact that both models propose a reduction in the salience of the existing group identities in order to reduce inter-group discrimination, re-categorization may be a more effective strategy than decategorization.

Further evidence supporting the re-categorization model was provided in a study conducted by Gaertner et al. (1990). In this experiment, university students were randomly assigned to a three-person group, and each member of the group was provided with a different color-coded identity tag that was attached to their clothing. Then they were asked to reach consensus regarding the name of the group and to interact with each other in order to reach a consensual solution to a practical problem.
After the three-person discussion, members of two groups were brought together in another room and were induced to conceive the present participants either as one group or as two groups. Specifically, in the two-group condition, the members of each three-person group sat at different tables in different colored chairs. However, participants in the one-group condition were seated in same colored chairs at a table in an integrated seating pattern, were required to wear the same available T-shirts displaying the name of their university and were assigned a new group name representing all six participants. Finally, in order to measure bias, they were asked to rate all other participants on a number of evaluative items.

Consistent with the predictions derived from the re-categorization model, it was found that participants that were induced to conceive the aggregate as one group exhibited less bias compared to those that perceived the aggregate as two separate groups. Specifically, those in the one-group condition evaluated out-group members more positively than those in the two-group condition. Thus, members’ representations decreased bias, by increasing the attractiveness of former out-group members.

The aforementioned results were replicated and extended in a study that investigated the effects of re-categorization on inter-group behavior (Dovidio et al., 1997). Using a similar experimental setting, two three-person groups interacted under conditions designed to enhance either a two-group representation or an inclusive one-group representation. Specifically, participants in the two-group condition sat at different tables in different colored chairs; whereas participants in the one-group condition were seated in same colored chairs at a table in an integrated seating pattern, were required to wear the same available T-shirts and were assigned a new group name representing all six
participants. After completion of the interactive tasks, each individual was asked to rate the other participants on the basis of a set of evaluative traits. Finally, participants were assigned to a helping task aiming to assess pro-social behavior.

The results of this study provided further evidence that inter-group bias is reduced when members of different groups perceive themselves as a single group rather than as two separate groups. Specifically, it was shown that, compared to those in the two-group condition, participants in the one-group condition evaluated out-group members more positively and they were more inclined to help an out-group member.

Further evidence supporting the re-categorization model was provided in a study that examined the effect of a common in-group identity on interracial evaluations (Nier et al., 2001, Study 1). In this study, White university students interacted with a Black or a White confederate under conditions designed to produce cognitive representations as separate individuals or as fellow group members. Participants in the individual condition sat at separate tables and solved a practical problem individually. Those in the team condition, sat at the same table, were assigned a group name, wore identical T-shirts with the name of their university printed on them, and reached a consensual solution to a practical problem. Following the categorization manipulation, participants were asked to evaluate the confederate on a variety of traits.

The researchers found that the categorization manipulation did not affect the evaluations of the White target. However, more important, participants in the team condition rated the Black confederate more positively than those in the individual condition. This finding is consistent with the re-categorization model, since the
development of a common group identity among Blacks and Whites, increased the positivity of Whites' evaluations of Blacks.

1.1.8: Summary

To summarize, SIT focuses on the implications of group membership for inter-group behavior and proposes that people need to view their in-group and in effect, themselves positively and that this desire motivates biased inter-group comparisons. Evidence supporting the main tenets of SIT has been provided from studies that have shown that the mere awareness of social category membership can lead to inter-group discrimination, that inter-group discrimination can increase self-esteem and that the strength of group identification can predict inter-group differentiation.

There is also evidence suggesting that group member's behavior is influenced by a set of values, goals and beliefs. Research on group norms has indicated that high identifiers are more likely to conform to highly important or accessible group norms, that the content of salient group norms can affect the level at which differentiation is expressed and that the content of both in-group and out-group norms can moderate inter-group bias.

Efforts to reduce inter-group bias have led to the creation of models aiming to change the structure of social categorizations. The cross-categorization model is based on the idea that the overlapping of category memberships can reduce bias by creating a shared group identity. The de-categorization and the re-categorization model suggest that bias can be reduced by de-emphasizing group identities and by creating, at a more inclusive super-ordinate level, a common in-group identity respectively.
1.2. Terror Management Theory

1.2.1. Overview of terror management theory

Unlike SIT, terror management theory (TMT; Greenberg, Pyszczynski and Solomon, 1986), addresses the question of why people need self-esteem and faith in their conceptions of reality and how these motives influence human thought and behavior. According to TMT, like other animals, humans possess the instinct for self-preservation—a desire for continued existence—that enhances the probability of their survival. Unlike other species, however, humans have developed a complex set of intellectual abilities that have made them capable of being aware of their existence. Self-awareness engenders the potential for paralyzing terror, because knowing that one is alive necessitates the realization of one’s vulnerabilities and mortality. This terror created by the combination of the instinct for self-preservation with an awareness of the inevitability of death had to be resolved for “continued goal-directed behavior to be possible” (Greenberg, Solomon, and Pyszczynski, 1997).

TMT posits that humans used their unique cognitive abilities to manage this terror by creating culture: a world of meaning that is superior to the natural world and that elevates human species to the highest plane of existence. More specifically, the theory suggests that the potential for terror that is produced by the realization of the inevitability of death is controlled by a cultural anxiety buffer that consists of the cultural worldview and self-esteem. Cultural worldviews—culturally-defined beliefs about the nature of reality—bring the anxiety caused by the awareness of vulnerability and mortality under control by “organizing human perceptions in ways that suggest that the universe is orderly and meaningful, by providing standards of value that are based on such
conceptions of reality; and by promising literal and/or symbolic immortality to those who meet these standards of value" (Greenberg, Solomon, and Pyszczynski, 1997).

This meaningful conception of reality makes it possible for people to have self-esteem, that is, to feel valuable members of a meaningful universe, by behaving in a culturally valued way and by achieving culturally valued goals (Greenberg, Solomon, and Pyszczynski, 1997). Meeting cultural standards of value confers death transcendence. Specifically, spiritual concepts, such as immortal soul, promise literal immortality, whereas identification with large and long-lasting entities, such as the nation, and culturally valued achievements, such as money, promise symbolic immortality (Greenberg, Solomon, and Pyszczynski, 1997).

Thus, according to TMT, self-esteem and cultural worldviews are social constructions that serve an anxiety-buffer function and, as a result, people are strongly motivated to maintain these structures by seeking continual affirmation of their validity. When others agree with one's conceptions of reality and/or evaluation of oneself, then one's faith in these structures is increased and, as a result, the effectiveness of the cultural anxiety buffer is increased as well. However, when others disagree with one's conception of reality and/or evaluation of oneself, one's faith in the veracity of these beliefs decreases and, as a result, their effectiveness as buffers against anxiety is diminished (Greenberg, Solomon, and Pyszczynski, 1997).

People may respond to the existence of others who hold alternative views in a variety of ways (Berger and Luckmann, 1967). The most usual response is to minimize the threat to one's point of view by derogating either the alternative views and/or the people who hold such views. Thus, from this perspective, discrimination toward different...
others can be partly understood as a competition between death-denying conceptions of reality (Greenberg, Solomon, and Pyszczynski, 1997).

1.2.2. Empirical assessments of terror management theory

Empirical assessments of TMT are guided by two basic inter-related hypotheses, derived from the theory: the anxiety-buffer hypothesis and the mortality salience hypothesis. The anxiety-buffer hypothesis states that strengthening a psychological structure that provides protection against anxiety should reduce anxiety and anxiety-related behavior in response to threats, whereas weakening that structure should increase anxiety and anxiety-related behavior in response to threats (Greenberg, Solomon, and Pyszczynski, 1997). The mortality salience hypothesis states that if a psychological structure provides protection against the terror that death concerns can create, reminding individuals of their death should increase their need for validation of that structure (Greenberg, Solomon, and Pyszczynski, 1997). These hypotheses are inter-related, since self-esteem and worldview faith are needed in order to protect people from the anxiety death-related thoughts can cause and due to the anxiety-buffer function of these structures, when mortality is salient people are particularly motivated to validate them.

1.2.3. Anxiety buffer hypothesis

Support for the anxiety-buffer hypothesis has been provided by a large number of studies. For example, several correlational studies have provided evidence of associations between self-esteem and mental and physical well-being (e.g., Antonucci and Jackson, 1983). In addition, a substantial number of experimental studies have shown that threats,
to self-esteem produce anxiety (e.g., Leary, Barnes, and Griebel, 1986), that such anxiety leads to defensive responses to self-esteem threats (e.g., Gollwitzer, Earl, and Stephan, 1982), and that anxiety is reduced when self-esteem is defended (e.g., Mehlman and Snyder, 1985). Even though these findings are consistent with the terror management proposition that self-esteem serves an anxiety-buffer function, in order to clearly establish the causal relation of self-esteem and anxiety proneness, a series of experiments have tested the hypothesis that people with high self-esteem are less prone to exhibit anxiety or anxiety-related behavior in response to threats.

Direct evidence of self-esteem's anxiety-buffering function was provided by Greenberg et al.'s studies (1992; Studies 2 and 3). In study 2 self-esteem was manipulated by providing subjects with either positive feedback or no feedback on a bogus test of verbal intelligence, whereas in study 3 self-esteem was manipulated by providing participants with either positive feedback or neutral feedback on a bogus personality test. These studies showed that subjects in the increased self-esteem condition exhibited less arousal in response to the threat of electric shocks than did subjects in the neutral self-esteem condition. These findings support the anxiety-buffering function of self-esteem by suggesting that a boost to self-esteem makes people less prone to experience anxiety in response to threats of their physical well-being.

However, TMT posits that self-esteem provides protection against concerns about mortality. Greenberg et al. (1992, Study 1) tested this assumption by conducting a study in which threat was manipulated by exposing subjects either to a video about death or to a neutral video. Before the video, self-esteem was manipulated by providing half of the participants with positive feedback on a bogus personality test and the remainder with...
neutral feedback. The researchers found that, in the death video condition, neutral self-esteem subjects reported higher levels of anxiety in response to the video than did increased self-esteem subjects. These results provide evidence that self-esteem protects individuals from the anxiety that death-related threats can produce.

1.2.4. Mortality salience hypothesis.

A number of studies have provided evidence supporting the mortality salience hypothesis. As TMT posits, reminding people of their mortality motivates especially negative reactions toward those who challenge or threaten their worldviews and especially positive reactions toward those who support or uphold their worldviews. Those exaggerated evaluations of similar and different others has been termed as "worldview defense" (Greenberg, Solomon, and Pyszczynski, 1997). A relatively large number of studies have provided evidence that support this hypothesis.

In a typical study, the mortality salience manipulation involves participants responding to two open-ended questions: "Please briefly describe the emotions that the thought of your own death arouses in you?" and "Jot down, as specifically as you can, what you think will happen to you as you physically die". Participants in control conditions respond to parallel questions about neutral topics, such as watching television or reading a book. The effects of mortality salience are assessed by asking participants to rate target individuals who either uphold or violate important aspects of their worldviews.

In the first mortality salience study, conducted by Rosenblatt et al. (1989, Study 1), municipal court judges, assigned either to the mortality salience condition or to the control condition, received information about a hypothetical alleged prostitute (moral
transgressor) and were asked to set a bond for the prostitute based on that information.

Subjects in the mortality salience condition recommended significantly higher bonds for
the accused prostitute than did subjects in the control condition. This finding is consistent
with terror management’s proposition that when death is salient, moral transgressors,
such as prostitutes, should threaten one’s worldview even more by violating its standards
of value.

Florian and Mikulincer (1997, Study 1) obtained similar results in a study
conducted amongst Israeli college students. Participants in the mortality salience
condition were reminded of their mortality by completing the Intrapersonal and the
Interpersonal subscales of the Fear of Personal Death Scale (Florian and Kravetz, 1983).

The Intrapersonal subscale focuses on the consequences of death on oneself and involves
items such as “the decomposition of the body”, whereas the Interpersonal subscale
focuses on the consequences of one’s death to others and includes items such as “inability
to provide for family”. This manipulation was followed by the Multidimensional Social
Transgression Scale, which includes 20 vignettes built as brief newspaper reports, each
one describing a particular social transgression, such as traffic offence and robbery, and
the consequences of that transgression to the victim. Participants were asked to evaluate
both the severity of each transgression and the severity of the punishment they believed
should be administrated to each transgressor. Those in the control condition completed
the Multidimensional Social Transgression scale prior to the Intrapersonal and Interpersonal
subscles. The researchers found that, compared to the control condition,
mortality salience led to harsher evaluations of the transgressions and to harsher
punishments to the transgressors.
However, the theory also posits that mortality salience should produce particularly positive reactions toward those who validate one's worldview. The effects of mortality salience on reactions toward those who directly validate or threaten one's worldview were examined by Greenberg et al. (1990, Study 3). American students in the mortality salience condition and in the control condition were presented with a pro-US, an anti-US or a mixed version of a hypothetical interview and they were asked to rate the content of the interview and the interviewee. The results of the study indicated that mortality salience produced especially positive reactions to the interviewee who had favorable views of the United States and especially negative reactions to the interviewee who had unfavorable views of the United States. These results support the theory's assumption that mortality salience leads to particularly positive reactions to those who praise one's culture and to particularly negative reactions to those who criticize one's culture.

Additional evidence that mortality salience leads to particularly positive reactions towards those who uphold one's beliefs was provided by Rosenblatt et al. (1989, Study 3). After mortality was made salient for half of them, participants were given the chance to suggest the amount of reward to be given to a woman who had helped police to arrest a criminal. Consistent with the theory's hypothesis, subjects in the mortality salience condition recommended a larger amount of money for the hero than did subjects in the control condition.

Although these findings support the argument that when people think about death, their need for faith in their cultural values increases and, as a result, their desire to punish those who threaten their worldview by violating these values and to reward those who...
validate their worldview by upholding these values increases as well, according to TMT, the validity of one’s own worldview can be threatened by the mere existence of people with different values. In order to establish this argument, Greenberg et al. (1990, Studies 1 and 2) conducted a series of studies in which the effect of death-related thoughts on people’s attraction toward others with similar or dissimilar beliefs was tested. In study 1, Christian subjects were assigned either to a mortality-salient condition or to a control condition. Participants in both conditions were given a description of a hypothetical Jewish person and a description of a hypothetical Christian person. After reading the description of each person, participants were asked to rate each target. The researchers found that when mortality was salient, Christians were rated more positively and Jews were rated more negatively. This finding supports the terror management proposition that due to the importance of religious beliefs in people’s cultural worldviews, both the positivity of the evaluations of in-group members and the negativity of the evaluations of out-group members increase when death-related thoughts are salient.

The above finding was extended in the second study in which participants were separated into low and high authoritarians. According to Adorno et al. (1950), people high in authoritarianism have rigid and dogmatic views and they lack tolerance toward those with different beliefs. However, people low in authoritarianism are open-minded and they tolerate different opinions. After completing questionnaires concerning either death or food, subjects were asked to rate a person who held either similar or dissimilar beliefs.
It was found that high authoritarians derogated dissimilar others more when mortality was salient. Mortality salience, however, did not affect the reactions of low authoritarians to dissimilar others. This is consistent with the proposition that death-related thoughts increase concern about upholding values and that, since each person has his or her own understanding of the world, when death-related thoughts are salient, different people are motivated to defend different cultural beliefs and values. When reminded of their death, low authoritarians did not react negatively to others with dissimilar views, because by doing so other important to them values, such as tolerance towards dissimilar others and out-group members, would have been violated. Instead, when they were reminded of death, they defended their cultural worldview by upholding the value of tolerance and mitigating the typical effect of mortality salience to discrimination.

Further evidence that the effects of mortality salience are precisely directed at violating important values was provided by Rosenblatt et al. (1989, Study 2). After the typical mortality manipulation, participants received information about a moral transgressor (prostitute) and were asked to set a bond for the target based on that information. Participants were also asked to rate the experimenter. The researchers found that mortality salience resulted in higher bond assessments only amongst the subjects who were morally opposed to prostitution. In addition, mortality salience had no effect on evaluations of the experimenter. Based on these findings, the authors concluded that the effects of mortality reminders are specifically directed at worldview threats and worldview-threatening others.
1.2.5. The uniqueness of death-related thoughts

Taken together, the studies reported so far have provided evidence that is consistent with hypotheses derived from TMT. Unique support for the theory, however, is predicated on the assumption that the effects of mortality salience are uniquely driven by thoughts of one's own mortality rather than by any anxiety-related or self-threatening event. A number of studies have tested this assumption.

In an attempt to compare the effects of concerns about one's own death and concerns about a loved one's death, Greenberg et al. (1994, Study 1) asked American participants to respond to two open-ended questions regarding either their own death, the death of a loved one or television. In order to assess worldview defense, subjects were asked to read and evaluate both an anti-American and a pro-American essay. The researchers found that subjects who thought about their own mortality or the mortality of a loved one defended their cultural worldview significantly more than did subjects who thought about television. However, compared to the death of a loved one condition, this effect was stronger in the own death condition. The authors assumed that thinking about the death of a loved one produces increased worldview defense only to the extent that these thoughts remind people of their own mortality.

In order to further examine whether the effects of mortality salience are specific to death or are caused by the salience of aversive and anxiety-provoking events in general, they carried out a further study (Greenberg et al., 1994, Study 2) in which American subjects were induced to think either about their mortality, about “experiencing intense pain”, about “giving a speech in front of a large audience”, or about watching television. Participants were then asked to read and evaluate a pro-US and an anti-US essay.
essay. The researchers found that only mortality salient subjects exhibited increased worldview defense, by showing a clear preference for the pro-US essay. Thus, it seems that aversive thoughts in general do not engender the increased defense of the cultural worldview that mortality salience does.

Additional evidence for the unique effects of thoughts of mortality on people's behavior has been provided in a study designed to test whether the salience of worrisome events that are not related to death and that do not challenge the individual's conception of the world, encourage adherence to the cultural worldview (Greenberg et al., 1995 Study 2). College students were asked to recommend bonds for an accused prostitute after writing about either their death, taking their next important exam or watching television. The researchers found that mortality salient subjects set higher bonds than exam salient and television salient subjects did. Even though exam salient students reported increased negative affect, exam salience did not cause increased bond assessments. These results suggest that worrisome thoughts do not produce increased worldview defense and they also indicate that the effects of mortality salience on people's behavior are not mediated by negative affect.

Finally, because of the centrality of self-awareness within TMT (Greenberg, Solomon, and Pyszczynski, 1997), it could be argued that heightened self-awareness mediates the effects of mortality salience on worldview defense. Rosenblatt et al. (1989, Study 4) tested this assumption by asking participants to write about either their death or a neutral topic in a small room that either did or did not contain a large mirror. The mirror was used because it has been found to be a reliable way to heighten people's self-awareness (Carver and Scheier, 1981). Participants were then asked to judge a moral issue.
transgressor (a prostitute) by setting bonds. The researchers found that, unlike mortality salience that led to higher bonds compared to the control condition, increased self-awareness did not affect the participants' judgments.

In sum, there is converging evidence supporting the terror management proposition that cultural worldviews function to reduce the anxiety caused by a deeply rooted fear of death.

1.2.6. Behavioral effects of mortality salience

Apart from the attitudinal effects described so far, mortality salience has been shown to affect people's behavior as well. For example, McGregor et al. (1998, Study 1) investigated the effect of mortality salience on aggressive behavior. Moderately conservative and moderately liberal students were asked to think either about their own death or about their next important exam and then they were presented with an essay that was derogating either the conservatives or the liberals. Subjects were led to believe that the author of the essay was a fellow participant who disliked spicy food and would have to consume varying amounts of hot spicy sauce. Aggressive behavior was measured by the amount of hot sauce that participants allocated to the target. As predicted, unlike those in the exam salience condition, participants in the death salience condition exhibited aggressive behavior by administering greater amounts of hot sauce to the target that challenged their political stance and their group's values.

In a further study (McGregor et al., 1998, Study 3), after American participants were instructed to think either about their death or about experiencing dental pain, they were presented with an anti-American essay. Then, those in the mortality salience
condition were either asked to evaluate the author by expressing their attitudes towards
the worldview-threatening target prior to administering hot sauce to the target or to 
allocate the hot sauce prior to evaluating the target. Those in the control condition were 
told to administer the hot sauce before evaluating the target.

The authors found that under mortality salience, participants who allocated hot 
sauce before evaluating the target administered the greatest amounts of hot sauce to be 
consumed by the target, whereas those that evaluated the author of the essay before 
allocating the sauce made the most negative evaluations. These results indicate that 
aggression and derogation are two alternative modes of response to death salience with 
equivalent psychological function.

Mortality salience, however, does not merely lead to culturally undesirable pro-social 
behavior. For example, in a study examining the relationship of death reminders with 
pro-social behavior (Jonas et al., 2002; Study 2), American participants were asked to 
write either about their own death or about experiencing dental pain and were asked to 
donate as much money as they wished to either American or international charities. The 
researchers found that, overall, mortality salience led to increased contributions of money 
to charitable organizations. However, it is very important to note that mortality salience 
did not increase willingness to help in general, since participants in the experimental 
condition offered more money than those in the control condition only to the American 
charities. Nevertheless, the in-group bias depicted in this study is consistent with the 
proposition that mortality salience increases people’s need to support their own culture.

Greenberg et al. (1995) provided additional evidence regarding the behavioral effects of mortality salience. After the typical mortality salience manipulation, American
participants were presented with two problem-solving tasks the most efficient solution to which required the culturally inappropriate use of either an American flag and a crucifix or a neutral object, such as a block of wood. It was shown that participants in the experimental condition took much longer to complete the task, rated the task as being more difficult and reported greater tension while working on the task compared to participants in the control condition. It seems that to the extent that flags and religious symbols represent important cultural values and beliefs, people are highly motivated to treat them in a respectful manner; especially after a mortality salience induction.

Nevertheless, mortality salience had no effect on the actual use of these highly valued objects in a questionable manner. Despite the potential of an alternative solution to the tasks presented to them, subjects still chose to use their nation's flag to sift dye and a crucifix to hammer a nail. This behavioral effect of mortality salience may have been due to the fact that problem-solving, achievement and competence are highly valued in Western civilization. Thus, it is possible that subjects' increased motivation to efficiently solve the problem and protect or enhance their self-esteem conflicted with their also increased motivation to respect cultural symbols and cultural worldviews.

1.2.7. The psychodynamics of terror management theory

In the mortality salience studies described so far, subjects think either about their own death or a neutral topic, then they fill-in some self-report affect scales, and then they complete the dependent assessment of worldview defense. Due to the absorbing nature of the tasks presented to them, it is highly likely that participants' attention is directed away from death-related thoughts prior to administration of the dependent measures. Taking
into consideration the findings of the mortality salience studies reported so far, it seems possible that people's motivation to defend their cultural worldview increases when they do not consciously think about death.

In order to test this possibility, Greenberg et al. (1994, Study 3) carried out a study in which the effect of distracting participants from death-related thoughts after the mortality salience induction was compared with that of keeping subjects focused on the problem of death. Participants in the control condition were induced to think about television and then they were presented with a television-related word puzzle. Participants in the mortality salience conditions were first induced to think about their death and then they were presented either with a television-related word puzzle or with a death-related word puzzle. The television-related word puzzle was designed to direct subjects' attention away from death-related thoughts, whereas the death-related word puzzle was designed to keep subjects focused on the problem of death. Finally, subjects read and evaluated a pro-US and an anti-US essay.

The researchers found that when mortality was salient, participants in the television puzzle condition exhibited an increased level of worldview defense, whereas those in the death puzzle condition did not. In addition, subjects in the control condition did not exhibit an increased level of worldview defense. These results suggest that the effects of mortality salience occur when thoughts about death are no longer in current focal attention when dependent measures are obtained. This probably happens because in mortality salience conditions participants initially suppress death-related thoughts in order to inhibit the psychological consequences of such threatening thoughts. There is plenty of evidence (e.g., Wegner,
suggested that suppressing a thought leads to hyper-accessibility of that thought, a phenomenon known as the post-suppression rebound of the unwanted thought. Indeed, research on the suppression of unwanted thoughts has indicated that, after a delay, suppressed thoughts become more rather than less accessible to consciousness due to an eventual relaxation of the suppressive efforts. If this is the case, then death-related thoughts should be more accessible after a distractive task than they would be immediately after a reminder of one's mortality.

In an attempt to test this possibility, Greenberg et al. (1994, Study 4) conducted a study in which the typical mortality salience manipulation was followed by a word-fragment completion task designed to assess the accessibility of death-related thoughts. Participants in the control condition read a distracting passage from a story before completing the accessibility measure, whereas participants in the mortality salience conditions read this passage either before or after completing the word fragments. It was found that death-related thoughts were more accessible for mortality salient distraction participants than they were for those in the other two conditions.

The results of the two aforementioned studies indicate that mortality salience effects emerge when death-related thoughts are "on the fringes of consciousness" (Pyszczynski, Greenberg, and Solomon, 1999).
serves to buffer anxiety, then it should moderate the anxiety and anxiety-related behavior caused by mortality salience. Thus, high self-esteem should provide protection against death concerns and prevent their resulting increase of one's need for worldview faith.

The interactive effects of self-esteem and death-related thoughts on worldview defense have been examined in a series of studies. Harmon-Jones et al. (1997; Studies 1 and 2), for example, tested the assumption that increased self-esteem should reduce or eliminate the effects of mortality salience. In the first experiment self-esteem was manipulated by providing some of the participants with positive feedback on a bogus personality test and the remainder with neutral feedback. In the second experiment, instead of manipulating self-esteem, the participants were individuals with either high dispositional self-esteem or moderate dispositional self-esteem. In both experiments, after the typical mortality salience manipulation, American participants were asked to read in no. either a pro-US or an anti-US essay supposedly written by a foreigner and evaluate both the author and the content of the essay. This form was used to measure worldview defense in response to mortality salience manipulation.

In the first study it was found that participants in the increased self-esteem condition did not respond to mortality salience with increased worldview defense and in the second study it was found that high dispositional self-esteem eliminates the worldview defense that reminders of mortality motivate. Thus, the results of both studies indicate that self-esteem provides protection against concerns about mortality. It is also important to note that the two aforementioned studies provide evidence that self-esteem and worldview defense serve the same psychological function by buffering the anxiety caused by mortality salience.
If high self-esteem reduces the effects of mortality salience on people's need to defend their cultural beliefs and values, then people with low self-esteem should engage in particularly strong worldview defense when reminded of their mortality. In an attempt to test this assumption, Simon et al. (1996, Study 1) conducted a study in which non-depressed and mildly depressed American students were induced to think about either their own mortality or watching television and were then asked to read and evaluate a pro-US and an anti-US essay. As predicted, under mortality salience, mildly depressed subjects exhibited a significantly stronger worldview defense than did non-depressed students.

Since self-esteem buffers the anxiety associated with death-related thoughts, then people who are reminded of their death should increase their efforts to maintain or enhance their self-esteem. Greenberg et al. (1992, Study 1) tested this assumption by assigning extremely liberal and extremely conservative American students either to the mortality salient condition or to the control condition and asking them to read two political attitude surveys one of which depicted an extreme liberal and the other depicted an extreme conservative.

Based on the subjects' evaluations of the two targets, the researchers found that, compared to the control condition, under mortality salience conservative participants became more favorable towards the similar target and more unfavorable towards the dissimilar one. In addition, whereas in the control condition all subjects preferred the target with the similar attitudes over the target with the dissimilar attitudes, in the mortality salient condition liberals' evaluations of the similar target did not become more favorable and actually their evaluations of the dissimilar target became less unfavorable.
It seems that due to the centrality of the value of tolerance within liberal political ideology (Stone, 1980), mortality salience increased the need of the liberal participants to maintain their self-esteem by living up to this value. Thus, the need to adhere to one's worldview when thinking about death can override the need to respond to worldview threat associated with others that hold different beliefs.

Nevertheless, there is an alternative explanation to the results of the above study. Since both conservatives and liberals became more favorable towards the conservative target, it is possible that the induction of death-related thoughts leads to conservative attitudes. In an attempt to examine whether the value of tolerance moderates the effect of mortality salience on people's reactions towards different or similar others, American students were primed with either the value of tolerance or a neutral value (Greenberg et al., 1992, Study 2). Then, after the typical mortality salience manipulation, participants read and evaluated the content and the author of either a pro-US or an anti-US essay, supposedly written by a foreigner.

The researchers found that under mortality salience, participants who were primed with the value of tolerance were no more negative towards the anti-US target than those in the control condition. In contrast, when a neutral value was primed, mortality salience intensified participants' reactions towards both the similar and the dissimilar target. These two studies have provided evidence that when the value of tolerance is highly important or highly accessible, the typical effects of mortality salience can be counteracted. Such findings are consistent with the view that death-related thoughts motivate people to maintain or enhance their self-esteem by upholding beliefs and values that are important to them.
Direct behavioral evidence for the proposition that mortality salience increases self-esteem striving was provided by Taubman-Ben-Ari et al. (1999, Study 3). Israeli soldiers, who perceived their driving ability either as relevant to their self-esteem or as irrelevant, were induced to the typical mortality salience manipulation and then drove in a car simulator. The authors found that the induction of mortality salience increased participants' driving speed only amongst those who valued their driving ability as a source of self-esteem. In a further study (Taubman-Ben-Ari et al., 1999, Study 4), positive feedback about the participants' driving skills, after the manipulation of mortality salience, eliminated this effect. Taken together, the results of these two studies indicate that mortality salience increases one's need to engage in a self-enhancing behavior.

1.2.9. Mortality salience and identification: Successful and unsuccessful groups

According to TMT (Greenberg, Pyszczynski, and Solomon, 1986), mortality-related thoughts increase the need for self-esteem, whereas according to SIT (Tajfel and Turner, 1979) affiliation with successful groups serves a self-enhancement purpose by allowing group members to compare themselves with others in a favorable fashion. Thus, death-related thoughts should increase people's tendency to affiliate with successful groups and decrease their tendency to affiliate with groups that do not fulfill the aforementioned criterion.

In order to investigate the above argument, Dechesne et al. (2000, Study 1) examined the effect of mortality salience on sport affiliation. Since sports is an important source of social identity in contemporary Western society, being reminded of one's death...
should increase one’s need to affiliate with a successful team and, in effect, increase one’s need to believe that one’s team is successful. In an attempt to test this hypothesis, after the typical mortality salience manipulation, Dutch participants were asked to predict the outcome of the next soccer game between the Netherlands and the main soccer rival Germany.

The researchers found that under mortality salience participants predicted that their national team would score more goals against Germany. Even though this finding is consistent with the prediction that mortality salience would increase participants’ need to believe that their team is a successful one by expressing more optimism about their team’s future results, it is very important to note that identification with the Netherlands’ soccer team was not directly measured.

In order to overcome this weakness and also to examine participants’ relative identification with successful and unsuccessful sports teams under mortality salience, Dechesne et al. (2000, Study 2) conducted an additional study. In this experiment, students who identified at least moderately with their university’s football and basketball teams were asked to think either about their death or about an upcoming exam. Their identification with and predictions for the results of both teams were assessed. Experimental sessions were conducted either a week before or a week after the first football game of the season.

Based on participants’ level of identification with both teams and on the fact that the basketball team had won the National Championship a few months ago, whereas the football team started the season with a defeat, the authors expected that before the loss participants in the mortality salience condition would be more optimistic about the results.
of their teams than those in the control condition. In addition, it was expected that after the loss and under mortality salience, participants would be more optimistic about and shift their identification towards the more successful basketball team and would decrease their estimates of success of their football team.

The results of the study supported their predictions hence indicating that death-related concerns increase people's need to enhance their self-esteem by increasing their identification with successful groups and decreasing their identification with unsuccessful groups. It is worth noting that prior to the game and when mortality was salient, participants expressed greater preference for the football team than the basketball team. This may seem inconsistent with the argument that increased identification with successful groups serves an anxiety-buffer role against mortality-related concerns. Nevertheless, as the authors argued, this was possibly due to the fact that the football game, and in effect the football team, was more salient during the experiment, whereas the basketball team had won the championship a few months earlier and would start their season a few months later.

1.2.10. Mortality salience and identification: The moderating role of need for closure

The results of the aforementioned study suggest that mortality salience results in clinging to a group that reflects positively on the self and/or distancing from a group that reflects negatively on the self. However, there are several factors that may moderate the effects of mortality salience on group identification and in-group bias. Dechesne et al. (2000, Study 1), for example, investigated a factor that may moderate the decision whether to defend a personally relevant group or abandon a group that is put on a
negative light when mortality is salient. In this study the potential moderating role of need for closure, a broad concept that refers to individuals' desire for clear and unambiguous knowledge, is related to a tendency to “fight rather than switch” (Kruglanski and Webster, 1996) and results in greater in-group bias (Shah, Kruglanski and Thompson, 1998), was assessed. The researchers assumed that under mortality salience, high-need-for-closure individuals will defend and maintain identification with a personally relevant group that is criticized; whereas low-need-for-closure individuals will distance themselves from the personally relevant yet criticized group.

In order to assess this hypothesis, a week before the actual experiment, students of the university of Nijmegen that took part in the study were separated into low and high-need-for-closure on the basis of the Personal Need for Structure Scale (Neuberg and Newsom, 1993) that seems to be a valid measurement of need for closure (Kruglanski et al., 1997). The experiment involved the mortality salience manipulation followed by a short essay that criticized the university of Nijmegen. Finally, participants' distancing from the group and derogation of the critic were assessed by an identification measurement and an evaluation of the author respectively.

The results of the study supported the researchers' predictions, since, under mortality salience, low-need-for-closure participants identified less with their university than high-need-for-closure participants. In addition, when death-related thoughts were salient, only high-need-for-closure subjects, who desired maintenance of group membership, derogated the author of the critical essay. Thus, individual differences in need for closure seem to play a vital role in choosing whether to defend one's group or to...
distance from one’s group, when mortality is salient and a personally relevant group is threatened.

1.2.11. Mortality salience and identification: The moderating role of group boundaries

Apart from individual differences that can moderate one’s reactions under mortality salience, there are other factors that may determine whether to adopt distancing or derogation as a terror management strategy. In the aforementioned study, participants had a choice between defending and abandoning their group. Nevertheless, the structural properties of a group, and in particular, group boundaries, may also determine the chosen strategy. For example, more enduring groups like the nation and families are fundamental to one’s self-structure and have more impermeable boundaries than more temporal groups such as universities.

Past research has shown that the permeability of group boundaries determines the extent to which an individual can distance from a particular group (Tajfel, 1978). Whereas permeable group boundaries allow distancing from a group, impermeable group boundaries do not. To the extent that permeability of group boundaries determines shifts in identification and mortality salience leads to abandoning a group that reflects negatively on the self; it is possible that when mortality is salient individuals who are confronted with negative information regarding a personally relevant group will adopt distancing as a strategy only when they believe that the group boundaries are permeable.

Dechesne et al. (2000, Study 2) assessed this possibility by asking students from the university of Nijmegen to read a bogus newspaper article the purpose of which was to lead them to believe that the universities’ boundaries were either impermeable or
permeable. The permeability manipulation was followed by the mortality salience manipulation and an article that criticized the university of Nijmegen. Finally, participants' evaluation of the critic and identification with their university were assessed.

As it was expected, under mortality salience, participants in the permeable condition reduced their identification with the university, whereas participants in the impermeable condition derogated the critic significantly more than those who were made aware of the permeable nature of university affiliation. Thus, it seems that the permeability of group boundaries moderates the strategies people who are reminded of death adopt when a personally relevant group is threatened.

1.2.12. Mortality salience and identification: The moderating role of salient stereotypes

To the extent that mortality salience produces increased self-esteem striving, then it should also affect the level of identification with entities that are associated to self-esteem. From TMT's perspective, social identifications serve an anxiety-buffering function because they provide a sense that one is a valuable member of a meaningful reality. Group identifications that are positively valued and reflect positively on the self provide existential security, whereas those that are negatively valued and reflect negatively on the self interfere with one's efforts to maintain or enhance self-esteem and fail to buffer existential fears.

According to SIT (Tajfel and Turner, 1986), individuals derive self-esteem from their group memberships and as a result they are motivated to view their groups positively. Nevertheless, groups have negative features as well and there are occasions where such characteristics are difficult to be denied. In order to protect self-esteem,
people may deny a group membership and distance themselves from a group that is viewed in a negative light.

Since people reduce their identification with groups that are negatively perceived and mortality salience increases the need to maintain self-esteem, it seems possible that when negative information or stereotypes regarding a group are salient, death-related thoughts should exaggerate people’s tendencies to disassociate from such groups at the expense of in-group favoritism. Arndt, Greenberg, Schimel, Pyszczynski and Solomon (2002, Study 1) tested this hypothesis by asking participants to think either about their death or about experiencing dental pain. The mortality salience manipulation was followed by the induction of the stereotype threat. As all participants were female and women are believed to perform poorly in mathematics, the stereotype threat was having half of them anticipate taking a math test, whereas the other half were told that they would take a verbal test. Finally, participants’ perception of themselves as similar to women in general, a phenomenon known as self-stereotyping (e.g., Biernat, Vescio, and Green, 1996), was assessed.

The researchers found that mortality salience led to increased self-stereotyping only when participants expected to take a verbal test. Thus, it seems that death-related thoughts result in increased group identification to the extent that a negative stereotype is not active. Nevertheless, it should be noted that when mortality was not salient, participants’ gender identification responses did not differ. More important, when mortality salience was combined with the induction of a negative stereotype, participants did not perceive themselves as less prototypical of their gender, compared to those that were not reminded of their death. As the authors suggested, this could have been due to...
the fact that the stereotype threat induction used in this experiment was too subtle. It is possible that an active dis-identification response could have been achieved by framing one's group in a highly negative manner.

In order to test this possibility Arndt et al. (2002, Study 2) conducted a study on Hispanic and Anglo-American students. Hispanic ethnicity, which tends to be negatively framed in American culture, was manipulated by asking participants to read an article that described a Hispanic individual either in a very positive or in a very negative way. Then participants were asked to write either about their own death or about experiencing dental pain. Finally, group identification was assessed by asking them to evaluate abstract art that was supposedly painted by Hispanic or Anglo-American artists.

As expected, compared to those in the dental pain condition, both Anglo-American and Hispanic participants that were reminded of their mortality evaluated the paintings by Hispanic artists more favorably when a positive exemplar of the Hispanic group was primed and less favorably when the exemplar prime was negative. In contrast, mortality salience had no effect on evaluations of the paintings by Anglo-American artists, possibly because the ethnic prime was not directed at the Anglo-American group identity.

These findings demonstrate that when mortality is salient, situational factors, such as primed information about a group, can affect individuals' evaluations of both in-group and out-group members. In addition, they show that under certain conditions, mortality salience can lead to derogation of in-group members and decreased identification with groups that are generally difficult to abandon. Finally, according to the authors, when mortality salience was combined with a positive prime, Anglo-American...
participants evaluated Hispanic artists more favorably, because they perceived Hispanics as upholding mutual cultural standards. Similarly, when the prime was negative, Anglo-American participants in the mortality salience condition evaluated Hispanic artists less favorably, because they perceived them as violating cultural values.

In a further study, Arndt et al. (2002; Study 3) attempted to replicate and clarify the findings of the aforementioned study, by using a more direct measure of group disidentification. Thus, in a similar experimental setting, instead of asking participants to evaluate group members, a measure of defensive distancing was used. Specifically, Anglo-American and Hispanic participants were asked to rate themselves as well as a Hispanic target on the same personality traits. In addition, in this experiment, apart from a positive and a negative ethnic prime, a neutral ethnic prime was used as well.

The results indicated that only when mortality salience and the negative prime were combined, did Hispanic participants distance themselves from the Hispanic target. In addition, the combination of mortality salience and negative information about Hispanics did not affect Anglo-American participants. As the authors claimed, this could have been due to the fact that they were not pressured to distance themselves from that group as they already differed enough from the Hispanic target. Finally, compared to the neutral prime condition, when mortality salience was combined with the positive prime, there was a tendency amongst Hispanic participants to increase their identification with their group.

The above three studies provide converging evidence that mortality salience not only may fail to promote increased group identification, but it can also lead to
distancing from a personally relevant group, when negative information regarding that group is salient.

1.2.13. Mortality salience and identification: The group membership perspective.

The studies that have been presented so far indicate that the relationship between mortality salience and group identification can be interpreted via the need for self-esteem and worldview validation. However, there is also evidence suggesting that it may be group membership per se that matters, which undercuts the need for self-esteem and worldview validation.

Based on evidence suggesting that individuals who strongly identify with their group and perceive it as more entitative—a term referring to the extent to which a group is perceived as having real existence (Campbell, 1958)—display greater in-group bias (Gaertner and Schopler, 1998)—and that individuals who are reminded of their death also display greater in-group bias, Castano et al. (2002) examined the role of in-group identification and in-group entitativity on the effect mortality salience has on in-group bias. Specifically, the authors suggested that mortality salience will increase in-group bias and this effect will be mediated by in-group identification and in-group entitativity.

In order to test this hypothesis, after the typical mortality salience manipulation, Italian students' identification with Italy and perception of Italy as a real entity were measured. Finally, in order to measure in-group bias, participants were asked to rate Italians and Germans on a series of traits. As expected, mortality salience increased both in-group identification and in-group entitativity. In addition, whereas mortality salience had no significant effect on participants' out-group judgment, compared to those in the control condition, mortality salient participants evaluated the in-group more positively.

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Furthermore, the effect of death-related thoughts on in-group bias was mediated by in-group identification and in-group entitativity.

A possible interpretation of these results is that, to the extent that cultural worldviews are created and maintained within the group, group identification and group entitativity serve the need to preserve these worldviews. However, it is also possible that strengthening the link with the in-group and enhancing in-group entitativity do not solely depend on individuals' need to validate their worldviews through the in-group. Instead, these effects of mortality salience may be due to individuals' need to focus on their social identities rather than their personal identities: To the extent that social identities, in contrast to personal identities, are abstract, symbolic and do not perish as they continue to exist after one's death, individuals' enhancement of in-group identification and in-group entitativity following mortality salience may be an attempt to transcend their mortal fate by reifying the in-group. Thus, social identities may serve as an anxiety buffer per se and shifting from personal to social identities may be seen as a direct way to deal with the fear of death.

In order to further understand the nature of the effect of death-related thoughts on social identification, Castano (2004) examined whether the in-group becomes more important to individuals under mortality salience, when the measure of the importance of the in-group is an indirect one. In this study, in-group importance was measured by an in-group/out-group categorization task. Research on in-group importance that has included an in-group/out-group categorization task, has shown that, compared to low identifiers, high group identifiers categorize fewer targets in the in-group (Castano, Yzerbyt, Bourguignon, and Seron, 2002) and that individuals need more time and information to
place a target in the in-group category than the out-group category (Yzerbyt, Leyens, and
Belour, 1995).

In this study, after the mortality salience manipulation, Scottish participants were asked to decide whether a series of pictures depicted a Scottish or an English person and latency for categorization during this task was measured. It should be noted that mortality salience was manipulated subliminally by priming participants either with the word “death” or with the word “field”. TMT research has shown that subliminal death primes is a valid operationalization of mortality salience which leads to increased worldview defense via an unconscious processing of the concept of death (Arndt, Greenberg, Pyszczynski, and Solomon, 1997). Finally, participants were asked to rate English people on the basis of a series of positive and negative stereotypical of the English traits. The researcher found that when mortality was salient, participants took more time to categorize a target as a member of the in-group and classified less targets as in-group members than out-group members. Thus, it seems that even when in-group importance is measured indirectly, participants under mortality salience cling to the in-group more than those in the control condition. The author argues that this unconscious effect of mortality salience on the importance of social groups may indicate that it is group membership per se that matters rather than the consensual validation of cultural worldviews implied by group membership (Greenberg et al., 1990).

Another finding from the study presented above was that participants in the mortality salience condition judged the out-group more negatively than those in the control condition. It is interesting to note that TMT studies that have measured the
derogation of a whole group, as opposed to a member of a group, have produced mixed results. 

For example, Harmon-Jones, Greenberg, Solomon and Simon (1996) examined the effect of mortality salience on evaluations of the in-group and the out-group in a minimal group setting. The minimal group paradigm (Tajfel, Billig, Bundy and Flament, 1971) has produced evidence suggesting that the mere categorization into distinct groups can result in inter-group discrimination and in-group bias. 

In this study the researchers presented participants with five pairs of paintings and asked them to indicate which pair they preferred. Then half of the participants were told that they had been assigned to either group A or group B on the basis of their preferences, whereas the other half were told that their group membership had been randomly determined. Then the typical mortality salience manipulation was followed by the inter-group discrimination measurement. Specifically, participants were asked to rate themselves as well as members of the two groups on a set of positive and negative traits.

The results of the study indicated that mortality salience had no effect when the group assignment was random. However, as expected, when mortality was salient and participants' group membership had been determined on the basis of their aesthetic preferences, the in-group was rated more positively than it was in the other conditions. Nevertheless, mortality-related thoughts had no effect on evaluations of the out-group. Judging from the mixed results mortality salience has produced on inter-group bias it is possible that the nature and relationship of the groups in question may moderate the effects of mortality salience.
1.2.14. Mortality salience and affiliation defenses

Overall, within the mortality salience paradigm, worldview defense is usually assessed indirectly by examining individuals' reactions towards others who either support or attack their values and beliefs. This research has provided evidence suggesting that inter-personal evaluations are guided by the need to validate cultural worldviews. Thus, from TMT's perspective, relationships with other people serve an anxiety-buffer function to the extent that they are a vehicle for worldview validation. Where worldview defense is thought to be mediated by cultural-symbolic processes, seeking out the company of others when confronted with the problem of death is thought to be mediated by automatic, biological mechanisms. Thus, affiliation and worldview defense can be perceived as two functionally distinct ways individuals may respond to existential threats.

Wisman and Koole (2003) conducted a series of experiments which aimed to directly examine the relative strength of these defenses. In Study 1 students from the university of Nijmegen were asked to complete a number of questionnaires on the basis of which the personality scores for themselves and other participants that would supposedly take part in a group discussion would be calculated. Then, after the typical mortality salience manipulation, participants were either led to believe that all four members of the discussion group scored highly on the tolerance scale or that three of the four group discussion members had a low score on the tolerance scale. After receiving the bogus feedback, they were asked to enter the discussion room, which included a table with three chairs on one side and one chair on the other side of it. Participants' affiliation defense was assessed by recording whether they chose to sit on one of the three clustered
chairs or on the single chair. While they were waiting for the rest of the group to enter the room, they were provided with the worldview defense measurement. Specifically, participants were asked to evaluate the foreign authors of two essays one of which criticized the Dutch culture whereas the other praised it.

The results of the experiment indicated that mortality salience led to increased worldview defense only amongst the participants who had chosen to sit alone. In addition, under mortality salience, participants indicated a greater preference to sit in the group rather than to sit alone. Thus, it seems that mortality salience increases affiliation strivings and, as the authors suggest, affiliation defenses can psychologically compensate for worldview-validation defenses, since engaging in one form of defense prevented other form of defense to emerge. Finally, it should be noted that the personal relevance of tolerance may have affected the seating position preference. According to the authors, under mortality salience, tolerance may have been an important value only for those who chose to distance themselves from the intolerant discussants.

In order to overcome this problem, the researchers conducted another study (Wisman and Koole, 2003; Study 2) which was designed to control for the personal relevance of worldviews and the resulting motivation to defend them when they are threatened by a group in opposition to affiliation defenses. In a similar experimental setting, students from the university of Nijmegen were presented with a scale designed to assess the personal importance of six values. Then, after the typical mortality salience manipulation, participants were informed which category was most important to them. Next, they were told that they would take part in a group discussion which consisted of students that either valued positively their most important category or valued negatively.
their category. The affiliation defense measurement, which was identical to the one used in Study 1, was followed by the presentation of two essays, one of which supported the most important value of each participant whereas the other was the same for all participants and threatened all six values in question. Worldview defense was measured on the basis of participants' evaluations of the authors of the essays.

The results indicated that, under mortality salience, participants showed a greater preference to sit in the group, irrespectively of whether the group validated or threatened participants' most important and personally-relevant value. In addition, participants who were led to believe that the rest of the group would attack their values, indicated a greater preference to sit in the group than did those who expected to meet similar-minded others. As the authors claimed, this could be a result of participants' avoidance to directly confront a different-minded group. More important, the fact that when mortality was salient, participants in the different-minded condition showed more worldview defense than those in the similar-minded condition, is consistent with the view that the prospect of meeting similar-minded others prevented the need to validate their worldviews, whereas the prospect of meeting different-minded others did not. Overall, the results of this study provide evidence that under mortality salience, affiliation and worldview validation defenses can operate independently and simultaneously without rendering each other unnecessary.

In an attempt to clarify the results of the aforementioned study and to investigate whether affiliation defense can override worldview defense, the researchers conducted a final study (Wisman and Koole, 2003, Study 3). In a similar experimental setting, after the typical mortality salience manipulation, participants were led to believe that they...
would take part in a discussion which required them to either defend an opinion that was consistent with their worldviews and sit alone or to defend an opinion that opposed their own worldviews and sit in the group. The researchers found that mortality salience increased participants’ preference to sit in the group, even when that meant that they would have to attack their own personal worldviews. This finding suggests that affiliation defenses can override the need to validate personally-relevant beliefs and values.

However, it should be noted that compared to their first two experiments, in this study the preference to sit in the group was lower. As the authors argue, this could be either because participants were reluctant to attack their own worldviews or because affiliation defenses, which are automatic in nature, could not operate due to the explicit seating decisions.

1.2.15: Mortality salience and salient in-group norms

Despite the two different interpretations of the phenomenon, research within the TMT paradigm has produced converging evidence that mortality salience may increase in-group identification. Taking into consideration the evidence suggesting that high identifiers conform more strongly to salient group norms than low identifiers do (Jetten, Postmes and McAuliffe, 2002), it seems reasonable to argue that since mortality thoughts can enhance in-group identification, then they can also enhance adherence to in-group norms.

Gailliot, Stillman, Schmeichel, Maner and Plant (2008, Studies 1-3) examined the relationship between mortality salience and salient group norms and values. In study 1, non-Black American individuals were presented either with a paragraph that stressed the
importance Americans place on values—endorsing non-prejudicial beliefs or with a neutral topic. The group norm salience manipulation was followed by the typical mortality salience manipulation. Finally, in order to measure prejudice towards Blacks, participants were asked to complete the Attitudes toward Blacks (Brigham, 1993) scale that includes items such as "I would rather not have Blacks live in the same apartment building I live in".

The researchers found that, under mortality salience, participants who read the egalitarianism paragraph reported lower prejudice attitudes than those who read the neutral paragraph. In addition, when the value of egalitarianism was salient, participants that were reminded of their death showed lower prejudice toward Blacks compared to those in the control condition. These results indicate that death-related thoughts can decrease self-reported prejudice when egalitarian values are salient.

To the extent that reminders of death motivate people to adhere to salient cultural norms, under certain circumstances, mortality salience could also motivate helping behavior. Gailliot et al. (2008; Study 2) tested this assumption by manipulating the salience of mortality as well as the value of helping others. Specifically, prior to the typical mortality salience manipulation, participants were asked to read either a paragraph emphasizing the importance Americans place on the value of helping or a neutral paragraph. After the norm manipulation, they were told to complete a questionnaire measure of helping by indicating how willing they would be to help in certain hypothetical situations. For example, they were asked how much money they would donate to ill children and whether they would offer food to a homeless person.
It was found that when the helping value was salient, participants in the mortality condition reported greater willingness to provide help compared to those in the control condition. This finding supports the authors' prediction that mortality salience can motivate pro-social behavior when the value of helping is primed and it provides additional evidence that reminders of death increase salient norm adherence.

It should be noted that when mortality was not salient, the value of egalitarianism (Study 1) did not decrease self-reported prejudice towards Blacks and priming helping (Study 2) failed to increase willingness to help. The authors claim that these findings are consistent with the view that increased conformity to salient norms and values serves a defensive function, as participants increased their adherence to norms only when mortality was salient.

The findings of the two aforementioned studies were extended in a field experiment that used a behavioral measure of helping (Gailliot et al., 2008, Study 3). In this field study participants were students that either walked alone through a cemetery close to their university or through a parking lot. A cemetery was chosen as it is a place that should remind people of death. Group norm manipulation preceded mortality salience manipulation and involved a confederate; supposedly talking on a cell phone, saying in a clear and loud voice audible to participants either that “I agree, helping is an American value” or “I agree, she should learn to be more self-sufficient”. As participants exited either the cemetery or the parking lot, they encountered a second confederate that dropped a folder from her bag. Helping behavior was assessed by whether participants chose to help the stranger to pick up the folder.
The researchers found that participants in the cemetery condition that were primed with the value of helping were more likely to help the stranger pick up the dropped folder than either those in the cemetery condition that were not reminded of the value of helping or those in the parking lot condition that were primed with the value of helping. These results provide further evidence that mortality salience increases adherence to salient norms and values. They also extend the findings of Studies 1 and 2 (Gailliot et al., 2008) as they indicate that even a subtle reminder of one's mortality, like walking through a cemetery, can have a significant effect on one's actual behavior.

1.2.16. Mortality salience and salient social identities

To the extent that mortality reminders increase adherence to salient group norms and people possess a variety of social identities, with each one of them being associated with distinct values and beliefs, it seems possible that conformity to group norms under mortality salience will differ according to the social category that is active. In addition, since death-related thoughts motivate people to maintain or enhance their self-esteem by upholding beliefs and values that are important to them, salient social identities should moderate the effect of mortality salience on worldview validation.

The interactive effect of mortality salience and social identity on worldview validation was examined by Halloran and Kashima (2000, Study 1). This experiment involved bicultural Aboriginal Australian participants as they adopt two distinct cultural identities: the Australian identity, which is a relatively individualistic one (e.g., Triandis, 1995) and the Aboriginal identity, which is a relatively collectivist and relational one (e.g., Coombs, Brandl, and Snowdon; 1983). Social identity was manipulated first with
short essays that differed according to condition. So participants in the Aboriginal condition were reminded of the unique qualities of Aboriginal culture, participants in the Australian condition read about the achievements of Australians and participants in the neutral condition read about the rules of tennis as this sport is not related to either of the two identities. Then the typical mortality salience manipulation was followed by sets of items that assessed support for individualistic and collectivistic values.

As expected, the researchers found that mortality salience led to endorsement of the values of the salient identity. Specifically, death-related thoughts enhanced support for collectivism amongst participants in the Aboriginal condition as well as support for individualistic values amongst participants in the Australian condition. In addition, participants in both the Aboriginal and the Australian condition rejected out-group values when confronted with mortality. These results are consistent with the proposition that the salient social identity moderates the effects of mortality salience, as well as previous findings that mortality salience leads to rejection of out-group members and their related worldviews.

In order to provide further evidence supporting the assumption that mortality salience combined with an active social identity enhance endorsement of the relevant ingroup values, Halloran and Kashima (2000; Study 2) conducted a study that used a different manipulation of social identity. In this experiment, participants were Anglo-Australian university students and the three prominent identities that were used were the Australian identity, which is associated with individualism, egalitarianism and straightforwardness (e.g., Haslam, Oakes, Reynolds, and Mein, 1999), the student identity, which is associated with achievement values (e.g., White, 1988), and the.
personal identity, which is the set of characteristics that differentiate one person from another (Turner, Hogg, Oakes, Reicher, and Wetherell, 1987).

Social identity was manipulated first by asking participants to generate things they and other group members do often, rarely, well and badly. The Australian condition involved things that they and most other Australians do, the student condition things that they and most other students do and the personal condition things that they do personally. Then, the typical mortality salience manipulation was followed by measures for individualism, egalitarianism, straightforwardness and academic achievement aiming to assess in-group norm endorsement.

The researchers found that under mortality salience, participants in the Australian condition strengthened their support for egalitarianism and straightforwardness only and those in the student condition enhanced their support for academic achievement only. These results are consistent with the proposition that the effects of death-related thoughts on worldview validation depend on the salient social identity, as mortality salience led to value endorsement only to the extent these values were related to in-group identities. Further support for the above assumption was provided by the fact that participants in the personal condition were not affected by death-related thoughts, since the priming of personal identity under mortality salience did not lead to value endorsement. This finding is also consistent with SCT's tenet that the salience of personal identity makes group-level worldviews less accessible (Turner, Hogg, Oakes, Reicher, and Wetherell, 1987).

Even though the aforementioned study produced clear results that support the view that social identity and mortality salience have an interactive effect on the direction of worldview defense; it should be noted that both the salience of the Australian identity...
and the salience of death failed to produce increased support for individualism. As the authors argue, cross-cultural studies may have shown that Anglo-Australians are individualists, however this does not necessarily mean that individualism is an important aspect of their national identity.

1.2.17. Summary

TMT proposes that humans need to maintain or enhance their self-esteem and their faith in their cultural worldview in order to control the terror that the awareness of their mortality can create. Due to the psychological function of these social constructions, people are strongly motivated to seek for continual affirmation of their validity. Thus, prejudice can be understood as a competition between death-denying conceptions of reality and as an effort to meet the standards of value prescribed by these conceptions. Empirical assessments of TMT are guided by the anxiety-buffer hypothesis and the mortality salience hypothesis. The anxiety-buffer hypothesis states that strengthening self-esteem and worldview faith should reduce anxiety in response to threats, whereas weakening them should increase anxiety in response to threats. The mortality salience hypothesis states that death reminders should increase the need for validation of worldview faith and self-esteem.

Direct evidence supporting the main tenets of TMT has been provided by a number of studies indicating that self-esteem reduces anxiety in response to death-related threats, that mortality salience leads to particularly negative reactions towards those who challenge one's worldview and particularly positive reactions towards those who support one's worldview, that self-esteem moderates the mortality salience effect on worldview
defense and that mortality salience increases people's motivation to maintain or enhance their self-esteem.

Research has also established links between TMT and SIT. It has been shown that mortality salience increases individuals' need to identify with groups that reflect positively on the self and to distance themselves from negatively perceived groups, that in-group identification mediates the effects of mortality salience on in-group bias, that group boundaries and need for closure moderate the effects of mortality salience, that death-related thoughts increase conformity to in-group norms and that active social identities moderate the effects of mortality salience on worldview validation.
Chapter 2 - The Present Research

2.1. General Introduction

According to TMT (Greenberg, Pyszczynski and Solomon, 1986), like other species, humans possess a biological predisposition to continue existence, which is referred to as the instinct for self-preservation. However, due to their unique set of intellectual abilities that they have developed, humans are aware of their vulnerabilities and the inevitability of their mortality. The potential for paralyzing terror this awareness creates is controlled by a cultural anxiety buffer that consists of the cultural worldview and self-esteem. Effective terror management requires faith in a meaningful conception of reality (cultural worldview) and belief that one is a valuable contributor of a meaningful universe by satisfying the standards of value associated with that worldview (self-esteem). Due to the anxiety-buffer function of these psychological structures, people are strongly motivated to seek for continual affirmation of their validity in order to maintain faith in their cultural worldviews and meet the standards of value prescribed by these worldviews.

Empirical assessments of TMT are guided by two hypotheses derived from the theory: the anxiety-buffer hypothesis and the mortality salience hypothesis. The anxiety-buffer hypothesis states that strengthening a psychological structure that provides protection against anxiety should reduce anxiety and anxiety-related behavior in response to threats, whereas weakening that structure should increase anxiety and anxiety-related behavior in response to threats (Greenberg, Solomon, and Pyszczynski, 1997). The mortality salience hypothesis states that if a psychological structure provides protection
against the terror that death concerns can create, reminding individuals of their death
should increase their need for validation of that structure (Greenberg, Solomon, and
Pyszczynski, 1997).

A large number of studies have provided evidence supporting the main tenets of
TMT. It has been demonstrated, for example, that self-esteem reduces anxiety in response
to death-related threats (Greenberg et al., 1992), that mortality salience leads to especially
negative reactions toward worldview threatening people and behaviors and especially
positive reactions toward worldview upholding people and behaviors (e.g., Rosenblatt et
al., 1989); that self-esteem moderates the effects of mortality salience on worldview
defense (e.g.; Harmon-Jones et al., 1997) and that mortality salience increases people’s
motivation to maintain or enhance their self-esteem (e.g., Greenberg et al., 1992).

Research has also established links between TMT and SIT. For example, it has been shown
that death-related concerns increase individuals’ need to identify with groups that
impinge positively upon self-esteem (e.g., Dechesne et al., 2000), that group
identification mediates the effect of mortality salience on in-group bias (e.g., Castano et
al., 2002), that mortality salience exaggerates people’s tendencies to disassociate from
negatively perceived groups (e.g., Arndt et al., 2002), that group boundaries and need for
closure moderate the effects of mortality salience on group identification (Dechesne et
al., 2000), that mortality salience enhances adherence to in-group norms (e.g., Gailliot et
al., 2008), and that salient social identities moderate the effects of death-related thoughts
on worldview validation (Halloran and Kashima, 2000).
The aim of the current research is to extend previous research linking mortality salience to group norms, social identities and group identification by examining the potential moderating role of salient in-group and out-group norms, active social identities and in-group identification on the relationship between mortality salience and bias. The current research consists of six studies. The focus of Studies 1 and 2 is on salient in-group norms, of Study 3 on out-group norms, of Studies 4 and 5 on salient identities and of Study 6 on in-group identification.
3.1. Introduction

According to TMT (Greenberg, Pyszczynski and Solomon, 1986), people's instinct for self-preservation combined with the awareness of the inevitability of their own mortality creates the potential for paralyzing terror. In order to effectively manage this terror, people need to have faith in their worldview - culturally-defined beliefs about the nature of reality - and they also need self-esteem - the belief that they are valuable members of a meaningful universe, by behaving in a culturally valued way and by achieving culturally valued goals (Greenberg, Solomon, and Pyszczynski, 1997). Due to the anxiety-buffer function of these psychological structures, people are strongly motivated to maintain faith in their cultural worldviews and meet the standards of value prescribed by these worldviews.

According to TMT's mortality salience hypothesis, if a psychological structure (worldview faith and self-esteem) provides protection against the terror that death concerns can create, reminding individuals of their death should increase their need for validation of that structure (Greenberg, Solomon, and Pyszczynski, 1997). Several studies have provided evidence supporting this hypothesis by demonstrating that death-related reminders result in worldview defense as they motivate especially negative reactions towards different others that challenge or threaten one's worldview and especially positive reactions towards similar others that support or uphold one's worldview.

It has been found, for example, that when mortality was salient, judges set higher bonds for a moral transgressor than did those in the non-mortality salience condition.
In addition, it has been demonstrated that under mortality salience participants rated a variety of transgressions as more severe and proposed harsher punishments to the transgressors (Florian and Miculincer, 1996, Study 1). Moreover, it has been shown that when death-related thoughts were salient, Christian participants' evaluations towards hypothetical Christian and Jewish targets that were neutrally described were particularly positive and particularly negative respectively (Greenberg et al., 1990; Study 1). Such findings suggest that when mortality is salient, the mere existence of people with different values is sufficient to threaten one's worldview and in effect, produce worldview defense.

However, there is also evidence suggesting that mortality salience can increase in-group bias even when individuals are categorized on the basis of meaningless criteria. For instance, when group membership was determined on the basis of aesthetic preferences, participants for whom mortality was salient evaluated their group more positively than did those in the non-mortality salience condition (Harmon-Jones et al., 1996).

Also consistent with the mortality salience hypothesis, it has been indicated that death-related thoughts motivated people to increase the reward offered to a target that upheld cultural values by helping police to arrest a criminal (Rosenblatt et al., 1989, Study 1). Moreover, in another study it was shown that American participants for whom mortality was salient reacted in an especially positive manner towards a pro-US author and in an especially negative manner towards an anti-US author (Greenberg et al., 1990, Study 3).

Even though the aforementioned studies have produced evidence supporting the view that the contemplation of one's mortality produces particularly positive reactions...
towards similar others and particularly negative reactions towards different others, research has also revealed a number of factors that moderate the typical effects of mortality salience. For example, Greenberg et al. (1990, Study 2), has found that high authoritarians, who unlike low authoritarians lack tolerance towards those with different beliefs (Adorno et al., 1950), derogated dissimilar others more when mortality was salient. However, mortality salience had no effect on the reactions of low authoritarians towards different others. Thus, consistent with the proposition that death-related thoughts increase people's motivation to uphold their cultural beliefs and values, it seems that when mortality was salient, low authoritarians did not react negatively to others with dissimilar views because by doing so other important to them values, such as tolerance, would have been violated. Instead, when they were reminded of death, they defended their cultural worldview by upholding the value of tolerance and mitigating the typical effects of mortality salience.

Additional evidence implying that mortality salience causes increased conformity to group norms has been provided in a study that involved extreme conservative and liberal individuals (Greenberg et al., 1992, Study 1). In this study it was found that under mortality salience, conservative participants became more favorable towards targets with similar political attitudes and more unfavorable towards targets with dissimilar political beliefs. In contrast, when mortality was salient, liberals’ evaluations of the dissimilar target became less unfavorable. It seems that due to the importance of the value of tolerance within a liberal political ideology, mortality salience increased the need of the liberal participants to maintain their self-esteem by living up to this value.
However, the typical effects of mortality salience can also be counteracted when the value of tolerance becomes highly accessible to the individual. For example, it has been shown that when the value of tolerance was primed, reminding Americans of their death had no effect on their evaluations of an anti-US essay and its author (Greenberg et al., 1992, Study 2).

More direct evidence regarding the relationship between reminders of death and group norms was recently provided by Gailliot et al. (2008, Studies 1 and 2). Specifically, it was demonstrated that, compared to the control condition, when mortality was salient, priming group members with the norm of egalitarianism (Study 1) and the value of helping (Study 2), led to lower prejudice attitudes toward out-group members and greater willingness to help others respectively. These studies have indicated that mortality salience increases people's motivation to conform to salient group norms.

Study 1 is conducted in order to extend previous TMT and group norm research, by examining the interactive effect of mortality salience and salient group norms on levels of differentiation. The aim of the experiment is to test the hypothesis that mortality salience increases adherence to salient group norms and that the content of group norms moderates the effect of mortality salience on both inter-group and inter-individual differentiation.

In the current study, mortality salience was manipulated by asking university students to think either about their death or about watching television. Then, unlike previous research within the mortality salience paradigm, this study involved the manipulation of two opposing group norms that are implicitly related to bias. Specifically, participants were provided with false feedback that their university and its
students either endorsed individualism - a term associated with prioritization of personal goals over group goals (Triandis, 1995) or collectivism - a term associated with prioritization of collective goals over personal ones (Triandis, 1995). Inter-group and inter-individual allocations were used in order to measure inter-group and inter-individual bias respectively. Past research has shown that collectivist group norms cause higher inter-group differentiation compared to individualist group norms. In contrast, compared to collectivist group norms, individualist group norms lead to greater levels of inter-individual differentiation (Jetten et al., 2006).

It is predicted that mortality salience will increase participants' motivation to conform to salient group norms and that the content of in-group norms will moderate the effect of mortality salience on inter-group and inter-individual bias. More specifically, it is expected that group members will display greater levels of in-group favoritism when group norms prescribe collectivism as opposed to individualism and greater levels of inter-individual differentiation when group norms prescribe individualism as opposed to collectivism. Furthermore, these patterns should be more pronounced under mortality salience.

3.2. Method

3.2.1. Design and Participants

The design was a 2 (mortality salience versus non-mortality salience) x 2 (in-group norm: individualism versus collectivism) factorial with random allocation of participants to conditions. The study included 66 students from the university of...
Plymouth who volunteered to take part. The sample consisted of 35 men and 31 women, ranging in age from 18 to 48 (M = 24 years).

3.2.2. Materials and procedure

Participants were approached at the Plymouth university library and they were asked if they wished to take part in the study. Those who agreed were given a consent form, which assured them that all their answers would be strictly confidential, that their anonymity would be kept and that they were free to withdraw from the study at any time.

They were led to believe that the aim of the study was to investigate the effect of different forms of perception on decision-making and they were asked to write down their gender and their age. After they filled in the consent forms, participants were randomly assigned to one of four conditions and they were given the questionnaires to complete. Each questionnaire consisted of four parts.

The first part of the questionnaire involved the mortality salience manipulation (Rosenblatt, Greenberg, Solomon, Pyszczynski and Lyon, 1989; see Appendix A). Participants in the mortality salience condition were asked to write a short paragraph describing the emotions that the thought of their own death arouses in them, whereas participants in the non-mortality salience condition were asked to write a short paragraph about watching television.

After the mortality salience manipulation, participants completed the Positive and Negative Affect Schedule (PANAS; Watson, Clark and Tellegen, 1988), on which they reported how they felt at the moment (see Appendix B). The PANAS is designed to...

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1 Similar sample sizes have been used in past TMT research. Gailliot et al's (2008) studies 1 and 2, for example, have a similar design with Studies 1-5 of the current research and use similar sample sizes as well.
assess self-reported positive and negative affect and it includes two ten-item mood scales on which participants rate the extent to which they feel specific emotional states (1 = not at all, 5 = extremely).

The third part of the questionnaire consisted of the group norm salience manipulation (see Appendix C). All participants were provided with the results of a bogus study that was conducted in 2007 and investigated the values and attitudes of Plymouth students. Participants were led to believe that Plymouth students are either individualists (individualist group norm) or collectivists (collectivist group norm). The group norm manipulation was checked with a semantic differential. Participants were asked to indicate on a 9-point bipolar scale which word, individualist (1) or collectivist (9), best describes their university.

The final part of the study assessed both inter-group and inter-individual differentiation (see Appendix D). In order to measure inter-group differentiation, participants were required to allocate resources between the universities of Plymouth and Exeter, for improving teaching facilities, IT, facilities, and accommodation facilities. The funding allocation matrix that was used (adapted from Jetten, McAuliffe, Homsey, and Hogg, 2006) required participants to allocate between 0-100% of the funds, in units of 10%, to each party involved: inter-group differentiation was calculated on the basis of in-group and out-group allocations. The scores from the three allocations were averaged and standardised on an 11-point scale, ranging from 0 to 10, with higher scores indicating allocations that favoured the in-group. A single measure of inter-individual differentiation was also used. It required participants to allocate funds between
themselves and a fellow in-group member. Allocations were made on the basis of the fixed distribution patterns described above.

After completion of the questionnaires, participants were probed for suspicion, thoroughly debriefed and thanked for their contribution to the research. No one expressed suspicion about the true purposes of the study.

3.3. Results

3.3.1. Group Norm Manipulation Check

A one-way ANOVA on group norms revealed that the manipulation was successful, $F(1; 64) = 11.77; p = .001$. Participants presented with an individualist group norm rated the group as individualist ($M = 3.91; SD = 1.95$), whereas participants presented with a collectivist group norm rated the group as collectivist ($M = 5.43; SD = 1.62$).

3.3.2. In-group Bias

As analyses indicated that the level of internal consistency was satisfactory for the resource allocation scales ($\alpha = .87$), relevant items were averaged to obtain the measure for inter-group differentiation. A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and group norms on in-group bias (see Appendix E). The main effect for mortality salience on in-group bias was not significant, $F(1, 62) = 1.05, p = 0.308$ (observed power was 0.269). However, the main effect of in-group norms on inter-group differentiation was significant, $F(1, 62) = 28.58, p < 0.001$ (observed power was 1). Participants exhibited greater inter-group bias,
when group norms prescribed collectivism ($M = 6.92$, $SD = 1.78$), as opposed to individualism ($M = 5.14$, $SD = 1.14$). In addition, a significant interaction was found between mortality salience and in-group norm $F(1, 62) = 7.91, p = 0.007$ (observed power was .872).

Independent samples T-tests were performed in order to examine the pattern of means (see Figure 1). It was revealed that when mortality was salient, participants showed more in-group favoritism when group norms prescribed collectivism ($M = 7.62$, $SD = 2.01$) than when they prescribed individualism ($M = 4.84$, $SD = 1.97$), $t(30) = 5.06$, $p < 0.001$. Moreover, participants in the non-mortality salience condition exhibited significantly more in-group bias when in-group norms represented collectivism ($M = 6.31$, $SD = 1.34$) than when they represented individualism ($M = 5.45$, $SD = 1.04$), $t(32) = 2.09$, $p = 0.045$. In addition, collectivism led to significantly higher discrimination in the mortality salience condition ($M = 7.62$, $SD = 2.01$) than in the non-mortality salience condition ($M = 6.31$, $SD = 1.34$), $t(30) = 2.18$, $p = 0.037$. Finally, when the group norm was individualism, in-group bias was marginally lower in the mortality salience condition ($M = 4.84$, $SD = 1.97$) than in the non-mortality salience condition ($M = 5.45$, $SD = 1.04$), $t(32) = -1.74$, $p = 0.090$. 
3.3.3. Inter-individual Bias

A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and group norm on inter-individual differentiation (see Appendix F). The interaction between mortality salience and in-group norm was not significant $F(1, 62) = .05, p = 0.882$ (observed power was .108), and neither was the main effect for group norm $F(1, 62) = .15, p = .698$ (observed power was .125). However, a significant main effect for mortality salience on inter-individual
differentiation was revealed, $F(1, 62) = 4.29, p = 0.042$ (observed power was .658).

Participants in the mortality salience condition displayed more inter-individual bias ($M = 6.37, SD = 1.93$) than did participants in the non-mortality salience condition ($M = 5.38, SD = 1.89$) (see Figure 2).

![Figure 2: The effect of mortality salience and in-group norms on inter-individual bias](image)

3.3.4. Positive and Negative Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. The main effect for mortality salience on positive affect did
not reach statistical significance, \( F(1, 64) = .30, p = .586 \). In addition, there was no significant main effect for mortality salience on negative affect, \( F(1, 64) = 2.64, p = .109 \).

3.3.5. Gender Effects

A 2x2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience, group norm and gender on inter-group differentiation. No gender effects emerged.

3.4. Discussion

The results of Study 1 support the predictions that mortality salience and in-group norms have an interactive effect on inter-group differentiation and that the content of salient in-group norms moderates the effects of mortality salience on group bias. Consistent with predictions, inter-group differentiation was higher when group norms prescribed collectivism than when they prescribed individualism. Moreover, as expected, mortality salience increased participants' motivation to conform to salient in-group norms. When group norms endorsed collectivism, participants for whom mortality was salient showed stronger inter-group bias compared to those in the non-mortality salience condition. In contrast, when group norms represented individualism, participants that were reminded of their mortality exhibited marginally less inter-group bias than did those in the non-mortality salience condition.

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2 No gender effects were found in any of the current studies. The largest F value relating to gender effects was \( F = .817, p = .37 \). The issue of gender effects will not be further discussed.
These findings support the view that high accessibility of particular norms can influence the effects of mortality salience on bias and that mortality salience increases people's motivation to adhere to salient group norms. They are also consistent with past research that has shown that priming particular values can eliminate the effects of mortality salience on reactions towards worldview threatening others (Greenberg et al., 1992), that people are motivated to conform to group norms (e.g., Jetten et al., 2006) and that mortality salience motivates group norm adherence (Gailliot et al., 2008). The results of Study I may have been due to the fact that mortality salience increases the need to maintain or enhance self-esteem (e.g., Greenberg, Solomon, and Pyszczynski, 1997) and to the extent that conforming to group norms is a way to achieve a positive self-concept (Tajfel and Turner, 1986), it may have also increased the need to abide by group norms. However, taking into consideration that high identifiers are more likely to conform to group norms than low identifiers (e.g., Jetten et al., 1997; Jetten et al., 2002), it is also possible that mortality salience increased participants' need to focus on their group membership (e.g., Castano et al, 2002) and, as a result, death salience increased conformity to group norms.

Even though the results of this study provided evidence for the interactive effect of mortality salience and salient in-group norms on the group level of differentiation, the predicted interaction between mortality salience and salient in-group norms on inter-individual differentiation did not emerge. Instead, death-related thoughts led to increased amounts of inter-individual bias irrespectively of the salient in-group norm.

This result seems to contradict past TMT research indicating that mortality salience motivates conformity to salient in-group norms (Gailliot et al., 2008). However,
to the extent that making money is culturally valued and meeting cultural standards of value confers death transcendence (e.g., Greenberg, Solomon, and Pyszczynski, 1997), the fact that participants for whom mortality was salient allocated more money to themselves than to others is consistent with TMT's tenets. (See General Discussion for more information on potential explanations of findings, implications, limitations and future directions).
4.1. Introduction

Study 1 provided evidence that the effect of mortality salience on group bias is moderated by the content of in-group norms and that death reminders lead to increased adherence to salient norms. The aim of Study 2 is to extend these findings by examining whether the results obtained from Study 1 generalize to opposing group norms that are explicitly related to bias, namely fairness and discrimination. Specifically, the aim of the experiment is to test the hypotheses that salient in-group norms that prescribe either discrimination or fairness moderate the relationship between mortality salience and inter-group bias and that mortality salience increases conformity to these norms.

In the present study, mortality salience was manipulated by asking university students to think either about their death or about watching television. Then, group norms were manipulated by providing participants with false feedback that their university and its students either endorsed fairness or discrimination. Inter-group allocations were used in order to measure inter-group bias.

In this study it is predicted that mortality salience will increase participants' motivation to conform to salient group norms and that the content of group values will moderate the effect of mortality salience on inter-group bias. As past research has demonstrated that inter-group differentiation is higher when in-group norms prescribe discrimination than when they prescribe fairness (Jetten et al., 1996), it is expected that group members for whom mortality is salient, will display greater levels of in-group favoritism when group norms prescribe discrimination as opposed to fairness.
Furthermore, it is predicted that under mortality salience, participants that are led to believe that their group is discriminative will exhibit the greatest amount of in-group bias, whereas those that are led to believe that their group endorses fairness will exhibit the least amount of in-group bias.

4.2. Method

4.2.1. Design and Participants

The design was a 2 (mortality salience versus non-mortality salience) x 2 (ingroup norm: discrimination versus fairness) factorial with random allocation of participants to conditions. The study included 60 students from the university of Exeter who volunteered to take part. The sample consisted of 31 men and 29 women, ranging in age from 19 to 39 (M = 21 years).

4.2.2. Materials and procedure

After participants filled in the consent forms, they were randomly assigned to one of four conditions and they were given the questionnaires to complete. Each questionnaire consisted of five parts: The first part of the questionnaire involved the mortality salience manipulation (see Appendix A). After the mortality salience manipulation, participants completed the PANAS (see Appendix B).

The third part of the questionnaire consisted of the group norm salience manipulation (see Appendix G). All participants were provided with the results of a bogus study that was conducted in 2001 and investigated the values and attitudes of Exeter students, particularly those relating to resource allocations. Half of the participants
were led to believe that Exeter students are fair towards students of other universities (fairness norm), whereas the other half were led to believe that Exeter students discriminate towards students of other universities (discrimination norm).

The fourth part of the study assessed in-group favouritism by asking participants to allocate resources between the universities of Exeter and Bristol on the basis of fixed distribution patterns (see Appendix H). In-group bias was calculated on the basis of in-group and out-group allocations. The scores from the allocations were averaged and standardised on a 7-point scale.

The final part of the questionnaire included four items that checked the group norm manipulation (see Appendix I). Participants indicated the extent to which they agreed with four statements on 9-point scales ranging from "not at all" (1) to "very much" (9). Relevant items were averaged to obtain the measure for discrimination ($\alpha = .77$) and fairness ($\alpha = .83$) manipulation check.

4.3. Results

4.3.1. Group Norm Manipulation Check

In line with manipulations, participants perceived their group as more discriminatory in the discrimination ($M = 4.88, SD = 2.12$) than the fairness condition ($M = 3.65, SD = 1.65$), $F(1, 58) = 6.32, p = .015$ and more fair in the fairness ($M = 4.73, SD = 1.55$) than the discrimination condition ($M = 5.90, SD = 1.43$), $F(1, 58) = 9.18, p = .004$. 

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4.3.2. Inter-group Bias

As analyses indicated that the level of internal consistency was satisfactory for the resource allocation scales (α = .87), relevant items were averaged to obtain the measure for inter-group bias. A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and group norms on bias (see Appendix J). The main effect for mortality salience on in-group bias was not significant, $F(1, 56) = .15, p = 0.697$ (observed power was .125). However, the main effect of in-group norms on inter-group differentiation was significant, $F(1, 56) = 31.37, p < 0.001$ (observed power was 1). Participants exhibited greater inter-group bias, when group norms prescribed discrimination (M = 5.30, SD = .85), as opposed to fairness (M = 4.34, SD = .41). A significant interaction was found between mortality salience and group norms, $F(1, 56) = 4.34, p = .042$ (observed power was .661).

Independent samples T-tests were performed in order to examine the pattern of means (see Figure 3). It was revealed that when mortality was salient, participants showed more in-group favoritism when in-group norms represented discrimination (M = 5.44, SD = .84) than when they represented fairness (M = 4.13, SD = .21), $t(28) = 5.85, p < .001$. In addition, fairness led to significantly lower discrimination in the mortality salience condition (M = 4.13, SD = .21) than in the non-mortality salience condition (M = 4.55, SD = .46), $t(28) = -3.19, p = .003$. Moreover, participants in the non-mortality salience condition exhibited significantly more in-group favoritism when in-group norms represented discrimination (M = 5.15, SD = .88) than when they represented fairness (M = 4.55, SD = .46), $t(28) = 2.33, p = .027$. However, when the group norm was discrimination, in-group bias was not significantly higher in the mortality salience.
condition (M = 5.44, SD = .84), than in the non-mortality salience condition (M = 5.15, SD = .88), t (28) = .91, p = .366.

**Figure 3: The effect of mortality salience and in-group norms on inter-group bias**

4.3.3. The Effect of Mortality Salience on Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. The main effect for mortality salience on positive affect did not reach statistical significance, $F (1, 58) = 1.40, p = .241$. However, there was a
statistically significant main effect for mortality salience on negative affect, $F(1, 58) = 4.71, p = .034$. Negative affect was higher in the mortality-salience condition ($M = 1.70, SD = .61$) than in the non-mortality salience condition ($M = 1.40, SD = .45$).

4.3.4. The Role of Negative Affect

A Sobel test for mediation was not significant ($z = -1.708, p = .478$). The bootstrapping procedure recommended by Preacher and Hayes (2004) for testing mediation in small samples was also used: Negative affect did not mediate the effects of mortality salience on inter-group bias (lower confidence interval $= -.32$ and upper confidence interval $= .063$).

4.4. Discussion

The results of study 2 provide further support to the argument that the content of salient in-group norms moderates the effects of mortality salience on inter-group differentiation and that mortality salience and group norms have an interactive effect on group bias. As predicted, under mortality salience, in-group differentiation was higher when group norms prescribed discrimination than when they prescribed fairness. Furthermore, consistent with expectations, when in-group norms represented fairness, participants for whom mortality was salient exhibited less in-group bias than did those in the non-mortality salience condition. In addition, when in-group norms prescribed discrimination as opposed to fairness, participants exhibited more bias.

These findings provide further support to the view that the content of salient group norms influences the effects of mortality salience on bias and that mortality
salience can increase people's motivation to conform to highly accessible group norms. They are consistent with the results of Study 1 and they extend them by demonstrating that the aforementioned effects generalize to opposing group norms that are explicitly related to inter-group bias. Like in Study 1, the increased need for self-esteem and for group membership focus can account for the results of this study.

Nevertheless, it should be noted that when norms endorsed discrimination, participants that were reminded of their mortality did not exhibit significantly more in-group favoritism compared to those for whom mortality was not salient. However, as TMT suggests, when mortality is salient, individuals are particularly motivated to support their cultural worldview (e.g., Greenberg, Solomon, and Pyszczynski, 1997). Thus, to the extent that discrimination is unlikely to be a culturally valued behavior, the salient discrimination norm may have contradicted participants' motivation to act in accordance to this norm when mortality was salient.
Chapter 5 - Study 3

5.1. Introduction

Overall, the results of Studies 1 and 2 are consistent with the view that the content of salient in-group norms moderates the mortality salience effect on group bias and that mortality salience increases group members’ motivation to conform to the norms of their group. Unlike previous research, Study 3 is conducted in order to examine the potential role of salient out-group norms on the effects of mortality salience on bias.

Past research has shown that the mere existence of individuals with different values (Greenberg et al., 1990, Study 1) and of out-group members (Harmon-Jones et al., 1996) can be enough to increase the motivation of people for whom mortality is salient to express biased attitudes toward them. To the extent that death reminders can sufficiently increase people’s motivation to make particularly positive evaluations of in-group members and particularly negative evaluations of out-group members; out-group norms should not influence the effects of mortality salience on bias.

However, past research on group values has shown that salient out-group norms can affect inter-group bias. For example, Jetten et al., (1996, Study 2) found that in-group bias increased when the out-group norm represented discrimination. More important, previous research has shown that Anglo-Americans for whom mortality was salient, evaluated Hispanics – a group that tends to be negatively framed in American culture – more favorably when a positive exemplar of the Hispanic group was primed and less favorably when the exemplar prime was negative (Arndt et al., 2002; Study 2). Thus, it seems plausible that the manner the out-group is framed and in-group members’
anticipation of out-group members' behavior may moderate the effects of mortality salience on inter-group bias.

The present study is conducted in order to explore the potential role of salient out-group norms on the effect of mortality salience on bias. In the current study, mortality salience was manipulated by asking university students to think either about their death or about watching television. Then, out-group norms were manipulated by providing participants with false feedback that the students of another university either endorsed, fairness or discrimination. Inter-group allocations were used in order to measure inter-group bias.

5.2. Method

5.2.1. Design and Participants

The design was a 2 (mortality salience, versus non-mortality salience) x 2 (out-group norm: discrimination versus fairness) factorial with random allocation of participants to conditions. The study included 60 students from the university of Plymouth who volunteered to take part. The sample consisted of 39 men and 21 women, ranging in age from 19 to 34 (M = 22 years).

5.2.2. Materials and Procedure

After participants filled in the consent forms, they were randomly assigned to one of four conditions and they were given the questionnaires to complete. Each questionnaire consisted of five parts. The first part of the questionnaire involved the...
mortality salience manipulation (see Appendix A). After the mortality salience manipulation, participants completed the PANAS (see Appendix B).

The third part of the questionnaire consisted of the group norm salience manipulation (adapted from Study 2; see Appendix G). All participants were provided with the results of a bogus study that investigated the values and attitudes of Exeter students, particularly those relating to resource allocations. Half of the participants were led to believe that Exeter students discriminate towards other local organisations (discrimination norm), whereas the other half were led to believe that Exeter students are fair towards other local community groups (fairness norm).

The fourth part of the study assessed inter-group bias and required participants to allocate resources between the universities of Plymouth and Exeter on the basis of fixed distribution patterns (adapted from Study 2; see Appendix H). In-group bias was calculated on the basis of in-group and out-group allocations. The scores from the allocations were averaged and standardised on a 7-point scale.

In the final part of the questionnaire the out-group norm manipulation was checked (adapted from Study 2; see Appendix I). Participants indicated the extent to which they agreed with the statements on 7-point scales ranging from “not at all” (1) to “very much” (7).

5.3 Results

5.3.1 Group Norm Manipulation Check

In line with manipulations, participants perceived the out-group as more discriminatory in the discrimination condition ($M = 3.93, SD = 1.36$) than the fairness
condition \((M = 3.26, \text{SD} = 1.14)\), \(F(1, 58) = 4.21, p = .045\) and more fair in the fairness condition \((M = 4.16, \text{SD} = 1.20)\), than the discrimination condition \((M = 3.30, \text{SD} = 1.29)\), \(F(1, 58) = 7.22, p = .009\) and more fair in the fairness condition \((M = 4.56, \text{SD} = .92)\), than the discrimination condition \((M = 4.26, \text{SD} = .69)\), \(t(28) = -1.85, p = .074\). In addition, fairness led to marginally lower in-group bias in the mortality salience condition \((M = 4.26, \text{SD} = .69)\) than in the non-mortality salience condition \((M = 4.86, \text{SD} = 1.04)\), \(t(28) = 1.85, p = .074\).

### 5.3.2. Inter-group Bias

As analyses indicated, the level of internal consistency was satisfactory for the resource allocation scales \((\alpha = .86)\), relevant items were averaged to obtain the measure for inter-group differentiation. A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and out-group norms on in-group bias (see Appendix K). The main effect for mortality salience on in-group bias was not significant, \(F(1, 56) = .17, p = .0.676\) (observed power was .129). However, the main effect of group norms on inter-group differentiation was significant, \(F(1, 56) = 13.61, p = .001\) (observed power was .97). Participants exhibited greater inter-group bias, when out-group norms prescribed discrimination \((M = 5.44, \text{SD} = .96)\), as opposed to fairness \((M = 4.56, \text{SD} = .92)\). In addition, a significant interaction was found between mortality salience and group norms, \(F(1, 56) = 4.41, p = .040\) (observed power was .667). Independent samples T-tests were performed in order to examine the pattern of means (see Figure 4). It was revealed that when mortality was salient, participants showed more in-group favoritism when out-group norms represented discrimination \((M = 5.64, \text{SD} = 1.07)\) than when they represented fairness \((M = 4.26, \text{SD} = .69)\), \(t(28) = 4.16, p < .001\). In addition, fairness led to marginally lower in-group bias in the mortality salience condition \((M = 4.26, \text{SD} = .69)\) than in the non-mortality salience condition \((M = 4.86, \text{SD} = 1.04)\), \(t(28) = -1.85, p = .074\).
However, when the group norm was discrimination, in-group bias was not significantly higher in the mortality salience condition (M = 5.64, SD = 1.07), than in the non-mortality salience condition (M = 5.24, SD = .81), t (28) = 1.14, p = .261. Finally, participants in the non-mortality salience condition did not exhibit significantly more in-group favoritism when out-group norms represented discrimination (M = 5.24, SD = .81) than when they represented fairness (M = 4.86, SD = 1.04), t (28) = 1.10, p = .278.

![Figure 4: The effect of mortality salience and out-group norms on inter-group bias](image-url)
5.3.3. Positive and Negative Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. The main effect for mortality salience on positive affect did not reach statistical significance, $F(1, 58) = 0.90, p = .985$. In addition, there was no statistically significant main effect for mortality salience on negative affect, $F(1, 58) = 1.07, p = .303$.

5.4. Discussion

The results of Study 3 indicate that mortality salience and out-group norms have an interactive effect on bias and that the content of salient out-group norms moderates the effect of mortality salience on inter-group bias. Specifically, under mortality salience, in-group bias was higher when out-group norms represented discrimination than when they represented fairness. Furthermore, when out-group norms prescribed fairness, participants in the mortality salience condition exhibited marginally less in-group bias than did those in the non-mortality salience condition.

These findings are consistent with past research that has shown that mortality salience leads to particularly positive reactions towards those who uphold cultural standards of value and to particularly negative reactions towards those who violate its standards of value (e.g., Rosenblatt et al., 1989). Nevertheless, they extend TMT research by demonstrating that, apart from the cultural values that an individual may either uphold or violate, the content of out-group norms can also influence in a similar way the effects of mortality salience. To the extent that fairness is culturally valued, a potential explanation of these findings is that mortality salience increased participants’ need for
self-esteem and intensified their motivation to praise those that were perceived as being fair by being fair towards them.

Nevertheless, this interpretation does not seem to account for the finding that compared to the non-mortality salience condition, anticipation of discrimination did not lead to increased group bias when mortality was salient. It should be noted however that past research has shown that the content of out-group norms may not be a particularly strong predictor of inter-group bias (Jetten et al., 1996, Study 2). This could also be the reason that when mortality was not salient, in-group bias was not influenced by the content of out-group norms, as there were no significant differences between group members that anticipated fairness and those that anticipated discrimination.
6.1. Introduction

The results of the studies presented so far, are consistent with the arguments that the content of group norms moderates the effects of mortality salience and that death reminders can increase people's motivation to act in accordance with salient group norms. Research has also demonstrated that when death-related thoughts are salient, adherence to group norms depends on the type of identity that may be active.

In a study that involved bicultural Aboriginal Australians (Halloran and Kashima, 2000, Study 1), for example, participants that were reminded of their Aboriginal identity endorsed collectivist values and rejected individualist values, whereas those that were reminded of their Australian identity endorsed individualism and rejected collectivism. Furthermore, these patterns were more pronounced when mortality was salient. In another study (Halloran and Kashima, 2000, Study 2), when mortality was salient, Anglo-Australian students that were reminded of their Australian identity strengthened their support for egalitarianism and straightforwardness only, whereas those that were reminded of their student identity enhanced their support for academic achievement only.

To the extent that Aboriginal identity is a fairly collectivist one (Coombs et al., 1983), whereas Australian identity is a fairly individualist one (Triandis, 1995) and to the extent that the Australian identity is associated with egalitarianism and straightforwardness (Haslam et al., 1999), whereas the student identity is associated with achievement values (White, 1988), the findings of these studies suggest that mortality salience combined with
an active social identity enhance endorsement of the in-group values that are related to that in-group identity.

The results of the two aforementioned studies are consistent with research that has shown that mortality salience did not increase low authoritarians' tendency to derogate dissimilar others (Greenberg et al., 1990, Study 2) and that death-related thoughts increased extreme liberals' tendency to evaluate conservative targets more favorably (Greenberg et al., 1992, Study 1). It seems that the importance or the accessibility of social categories influence the effects of mortality salience.

Study 4 is conducted in order to extend past TMT and salient identities research by examining the potential influence of active identities on the relationship between mortality salience and group bias. The aim of Study 4 is to test the hypotheses that salient social identities moderate the effect of mortality salience on inter-group bias and that mortality salience increases people's need to act in accordance to the salient social identity.

In the current study, social identity was manipulated by asking English students to write either about English people or about students. Then, in order to manipulate mortality salience, participants were asked to think either about their death or about watching television. Inter-group bias was measured by asking participants to allocate resources between English students and Scottish students.

In Study 4 social identities are primed in a cross-categorization context (Doise, 1976). Past research has indicated that when two categories cut across each other, inter-group bias is reduced because a common membership becomes salient (e.g., Deschamps and Doise, 1978).
As the in-group is English students and the out-group Scottish students, it is expected that the salience of the English identity will intensify the differences between the two groups, whereas the salience of the student identity will intensify the similarities between the two groups. In addition, these patterns should be accentuated when death-related thoughts are salient, since mortality salience produces particularly negative reactions towards different others and particularly positive reactions towards similar others.

Thus, it is predicted that group members will display more in-group favoritism when the salient identity is English and less in-group bias when the active identity is students. In addition, it is expected that mortality salience will accentuate these patterns, and that the type of salient identities will moderate the effects of mortality salience on inter-group bias.

6.2. Method

6.2.1. Design and Participants

The design was a 2 (social identity: English versus student) X 2 (mortality salience versus non-mortality salience) factorial with random allocation of participants to conditions. The study included 64 English students from the university of Plymouth who volunteered to take part. The sample consisted of 26 men and 38 women, ranging in age from 18 to 38 (M = 21.2 years).
6.2.2. Materials and Procedure

After participants filled in the consent forms, they were randomly assigned to one of four conditions and they were given the questionnaires to complete. Each questionnaire consisted of four parts.

The first part of the questionnaire involved the social identity manipulation (adapted from Halloran and Kashima, 2004; see Appendix L). Participants in the English condition were asked to generate up to three things that they and other English people in general do relatively often: rarely, well and badly. The student condition involved generating things that they and other students in general do.

The second part of the questionnaire consisted of the mortality salience manipulation (see Appendix A) and it was followed by the PANAS (see Appendix B). The fourth part of the study assessed inter-group bias by asking participants to allocate resources between the bogus association of English universities and the association of Scottish universities (adapted from Study 2; see Appendix H). In-group bias was calculated on the basis of in-group and out-group allocations. The scores from the allocations were standardised on a 7-point scale.

6.3. Results

6.3.1. Inter-group Bias

As analyses indicated that the level of internal consistency was satisfactory for the resource allocation scales (α = .90), relevant items were averaged to obtain the measure for in-group bias. A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and social identity on in-group bias (see
Appendix M). Mortality salience had a marginally significant effect on in-group bias, $F(1, 60) = 3.97, p = .051$ (observed power was .628). Participants in the mortality salience condition exhibited marginally greater inter-group bias ($M = 4.95, SD = 1.20$) than did those in the non-mortality salience condition ($M = 4.45, SD = .99$). The main effect of social identity on in-group bias was also significant, $F(1, 60) = 9.45, p = 0.003$ (observed power was .919). Participants exhibited greater inter-group bias when the salient identity was English ($M = 5.09, SD = 1.27$), as opposed to students ($M = 4.32, SD = .80$). In addition, a significant interaction was found between mortality salience and social identity, $F(1, 60) = 5.80, p = .019$ (observed power was .770).

Independent samples T-tests were performed in order to examine the pattern of means (see Figure 5). It was revealed that when mortality was salient, participants showed more in-group bias when the social identity was English ($M = 5.64, SD = 1.22$) than when it was students ($M = 4.27, SD = .70$), $t(30) = 3.89, p = .001$. In addition, English identity led to significantly higher inter-group bias in the mortality salience condition ($M = 5.64, SD = 1.22$) than in the non-mortality salience condition ($M = 4.54, SD = 1.08$), $t(30) = 2.69, p = .011$, whereas student identity did not lead to significantly lower bias in the mortality condition ($M = 4.27, SD = .70$) than in the non-mortality salience condition ($M = 4.37, SD = .91$), $t(30) = -.361, p = .721$. Finally, in the non-mortality salience condition, in-group favoritism was not significantly higher when the social identity was English ($M = 4.54, SD = 1.08$) than when it was students ($M = 4.37, SD = .91$), $t(30) = .46, p = .643$. 
Figure 5: The effect of mortality salience and social identities on inter-group bias

6.3.2. Positive and Negative Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. The main effect for mortality salience on positive affect did not reach statistical significance, $F(1, 62) = .15, p = .695$. In addition, there was no significant main effect for mortality salience on negative affect, $F(1, 62) = 2.62, p = .110$. 
6.4. Discussion

The results of this study indicate that mortality salience and social identity salience have an interactive effect on inter-group bias and that salient social identities moderate the effects of mortality salience on bias. As expected, under mortality salience, inter-group discrimination was higher when the salient identity was English than when it was students. Moreover, consistent with the prediction that mortality salience would accentuate the effect of active social identities on bias, when the English identity was active, group members for whom mortality was salient displayed greater inter-group bias than did those in the non-mortality salience condition.

These findings support the view that people’s reactions to the threat mortality salience poses are influenced by the social category that is salient at the time. They also extend previous TMT research that has demonstrated the interactive effect of mortality salience and active social identities on worldview validation (Halloran and Kashima, 2004) by showing that mortality salience and salient categories have an interactive effect on inter-group bias as well. The results of Study 4 may be explained by the fact that mortality salience increases the need to maintain or enhance self-esteem (e.g., Greenberg, Solomon, and Pyszczynski, 1997). To the extent that in-group favoritism is a way to achieve a positive self-concept (Tajfel and Turner, 1986) and the activation of the English identity intensified the differences between the in-group and the out-group as the cross-categorization model would suggest (Doise, 1976), mortality salience may have further increased the need to act in accordance to the active social category. However, it is also possible that participants’ increased need to focus on their group under mortality salience
(e.g., Castano et al, 2002) was complemented by the activation of a particular social category.

Nevertheless, when the active identity was students, participants in the mortality salience condition did not exhibit significantly less in-group bias than did those in the non-mortality salience condition. In addition, when participants were not reminded of their mortality, social identity salience had no effect on inter-group bias. However, in the non-mortality salience condition inter-group bias was particularly low, especially when the salient identity was students. This may have happened because the out-group in this study was a bogus one. Thus, the aforementioned null effects may have been due to the nature of the out-group that was used in this study.
Chapter 7 - Study 5

7.1. Introduction

Study 4 demonstrated that salient social identities moderate the effects of mortality salience on inter-group bias and that death reminders can accentuate the effects of active social identities on in-group bias. Study 5 is conducted in order to provide further evidence supporting the argument that active social identities influence the effects of mortality salience on bias.

In the present study, social identity was manipulated by asking English students to write either about English people or about Europeans. Then, in order to manipulate mortality salience, participants were asked to think either about their death or about watching television. Group bias was assessed by asking participants to rate French people on a set of positive and negative traits.

Unlike Study 4, in this study social identities were primed in a re-categorization context (Gaertner et al., 1993). Past research on the re-categorization model has demonstrated that group bias can be reduced or eliminated by changing group members' perceptions of group boundaries and creating a common in-group identity at a more inclusive super-ordinate level (e.g., Gaertner et al., 1989; Gaertner et al., 1990).

Since in-group members are English and out-group members are French, it is expected that the salience of the English identity will accentuate the differences between the two groups, whereas the salience of the inclusive, super-ordinate European identity will change participants' cognitive representations of the symbolic encounter and increase the attractiveness of former out-group members. In addition, these patterns
should be accentuated when death-related thoughts are salient, since mortality salience increases people's tendency to react negatively towards different others.

Hence, it is predicted that group members will display more bias when the salient identity is English and less bias when the active identity is the more inclusive category of Europeans. In addition, it is expected that mortality salience will accentuate the effect of salient identities on bias and that the type of active identities will moderate the effects of mortality salience on bias.

7.2. Method

7.2.1. Design and Participants

The design was a 2 (social identity: English versus European) X 2 (mortality salience versus non-mortality salience) factorial with random allocation of participants to conditions. The study included 53 English students from the University of Plymouth who volunteered to take part. The sample consisted of 25 men and 28 women, ranging in age from 18 to 36 (M = 21 years).

7.2.2. Materials and Procedure

After participants filled in the consent forms, they were randomly assigned to one of four conditions and they were given the questionnaires to complete. Each questionnaire consisted of four parts.

The first part of the questionnaire involved the social identity manipulation (adapted from Study 4; see Appendix I). Participants in the English condition were asked to generate up to three things that they and most other English do relatively often, rarely,
well and badly. The European condition involved generating things that they and most other Europeans do.

The second part of the questionnaire consisted of the mortality salience manipulation (see Appendix A) which was followed by the PANAS (see Appendix B). The final part of the questionnaire assessed bias by asking participants to rate French people on a set of positive and negative traits (Anderson, 1968; see Appendix N). Participants indicated the extent to which they believed that the traits apply to the French, on the basis of an 8-point scale ranging from “not at all” (1) to “extremely” (8).

7.3. Results

7.3.1. Out-group Bias

As an analysis indicated that the level of internal consistency was satisfactory ($\alpha = .81$), the positive evaluation items were first reversed and then averaged with the negative evaluation items to obtain the measure for out-group bias.

A 2x2 between-subjects analysis of variance was performed in order to examine the effect of mortality salience and social identity on in-group bias (see Appendix O). The main effect for mortality salience on group bias was not significant, $F(1, 49) = .04, p = .840$ (observed power was .107). However, the main effect for social identity on group bias was significant, $F(1, 49) = 38.45, p < .001$ (observed power was .944). Participants exhibited greater out-group bias, when the salient identity was English ($M = 5.31, SD = 1.02$), as opposed to Europeans ($M = 3.88, SD = .76$). In addition, a significant interaction was found between mortality salience and social identity, $F(1, 49) = 10.77, p = .002$ (observed power was .944).
Independent samples T-tests were performed in order to examine the pattern of means (see Figure 6). It was revealed that when mortality was salient, participants showed more out-group bias when the social identity was English (M = 5.68, SD = .85) than when it was European (M = 3.51, SD = .65), \( t (25) = 7.33, p < .001 \). In addition, English identity led to significantly higher bias in the mortality condition (M = 5.68, SD = .85) than in the non-mortality salience condition (M = 4.89, SD = 1.06), \( t (24) = 2.11, p = .045 \), whereas European identity led to significantly lower bias in the mortality condition (M = 3.51, SD = .65) than in the non-mortality salience condition (M = 4.22, SD = .71), \( t (25) = -2.65, p = .014 \). Finally, in the non-mortality salience condition out-group bias was marginally higher when the social identity was English (M = 4.89, SD = 1.06) than when it was European (M = 4.22, SD = .71), \( t (24) = 1.90, p = .069 \).
7.3.2. Positive and Negative Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. The main effect for mortality salience on positive affect did not reach statistical significance, $F(1, 51) < .01, p = .938$. In addition, there was no significant main effect for mortality salience on negative affect, $F(1, 51) = 1.05, p = .309$. 

Figure 6: The effect of mortality salience and social identities on out-group bias
7.4. Discussion

This study provided further evidence that mortality salience and social identity salience have an interactive effect on bias and that active social identities moderate the effects of mortality salience. As expected, bias was higher when the salient identity was English than when it was Europeans. Moreover, consistent with predictions, when the active identity was English, participants in the mortality salience condition exhibited more out-group bias than did those in the non-mortality salience condition. In contrast, when the European identity was active, group members for whom mortality was salient displayed less group bias compared to those in the non-mortality salience condition. Thus, in this study it was demonstrated that mortality salience accentuates the effect of active social identities on bias.

These findings provide further support to the view that salient social identities influence the effects of mortality salience on bias and that mortality salience can increase people's motivation to act in accordance with highly accessible group memberships. They are consistent with the results of Study 4 and they extend them by demonstrating that the aforementioned effects generalize to salient identities in a re-categorization setting. Consistent with past research (e.g., Gaertner et al., 1989; Gaertner et al., 1990) the activation of the English identity increased bias by accentuating the differences between the English and the French group, whereas the activation of the more inclusive European identity reduced bias. Furthermore, these effects were accentuated when mortality was salient. Like in Study 4, the increased need for self-esteem and for group membership focus that mortality salience causes could account for the results of the current study.
Chapter 8 – Study 6

8.1. Introduction

To the extent that highly accessible social identities influence the effects of mortality salience on bias, as Studies 4 and 5 demonstrated, then highly important identities could also influence the effects of mortality salience in a similar manner. Thus, it seems reasonable to argue that in-group identification can also moderate the effects of mortality salience on inter-group bias and that when death-related thoughts are salient, group members' reactions will depend on the importance they attach to their group membership.

Taking into consideration previous findings indicating that the higher the level of in-group identification, the higher the level of inter-group bias as well (Kelly, 1988), high identifiers would be expected to exhibit more inter-group bias compared to low identifiers. In addition, high identifiers for whom mortality is salient should exhibit the most bias, whereas low identifiers should not be particularly affected by mortality salience.

However, previous research has also shown that mortality salience can increase in-group identification. In a study that involved Italians, for example, it was found that mortality salience increased participants' national identification and, in effect, led to increased in-group bias. (Castano et al., 2002). Thus, it is also possible that in-group identification as an individual difference will not moderate the effects of mortality salience on inter-group bias.
The purpose of this study is to investigate whether identification as an individual difference influences the effect of mortality salience on group bias. More specifically, the aim of the current experiment is to examine if there are any differences in the amounts of group bias low and high identifiers display, when they are reminded of their mortality.

In the current study, students' level of identification with their university was measured. Then, mortality salience was manipulated by asking them to think either about their death or about watching television. Finally, inter-group allocations were used in order to measure inter-group bias.

To the extent that mortality salience increases in-group identification, there should be no differences in the amount of group bias low and high identifiers display, when they are reminded of their mortality. However, to the extent that contextual manipulations of social identities moderate the effects of mortality salience, individual differences in terms of levels of in-group identification could also influence these effects.

In this case, in-group identification should moderate the effect of mortality salience on inter-group bias, with high identifiers displaying greater amounts of bias compared to low identifiers.

8.2. Method

8.2.1. Design and Participants

A two-group design with a between subjects variable (mortality salience versus non-mortality salience) and a continuous predictor variable (in-group identification) was used. Participants were randomly allocated to conditions. The study included 104
students from the university of Plymouth who volunteered to take part. The sample consisted of 51 men and 53 women, ranging in age from 18 to 37 (M = 21 years).

8.2.2. Materials and Procedure

After participants filled in the consent forms, they were randomly assigned to each condition and they were given the questionnaires to complete. Each questionnaire consisted of 4 parts.

The first part of the questionnaire included 4 items which assessed participants' level of identification with the university of Plymouth (e.g., Jetten et al., 2002; see Appendix P). Participants indicated the extent to which they agreed with the statements on 7-point scales ranging from "strongly disagree" (1) to "strongly agree" (7). The identification scores were averaged with evaluations on the two last items being recoded (α = .76).

The second part of the questionnaire involved the mortality salience manipulation (see Appendix A). The mortality salience manipulation was followed by the PANAS (see Appendix B). The final part of the study assessed inter-group bias by asking participants to allocate resources between the universities of Plymouth and Exeter (adapted from Study 2; see Appendix H). In-group bias was calculated on the basis of in-group and out-group allocations. The scores from the allocations were averaged and standardised on a 7-point scale.
8.3. Results

8.3.1. Inter-group bias

A moderated multiple regression keeping the identification measure continuous and using mortality salience and group identification as the independent variables and inter-group bias as the dependent variable was performed (see Appendix Q). Mortality salience significantly predicted bias \( B = .27, \beta = .258, F(3, 100) = 2.7, p = .008 \). However, identification did not significantly predict bias \( B = .106, \beta = .119, F(3, 100) = 1.242, p = .217 \) and there was no interaction between mortality salience and identification \( B = .80, \beta = .089, F(3, 100) = .936, p = .351 \).

In order to check for non-linear effects, a polynomial regression with the squared and cubed identification scores being added to the equation was conducted (see Appendix R). Mortality salience significantly predicted bias \( B = .258, \beta = .246, F(5, 98) = 2.565, p = .012 \), whereas squared identification \( B = -.088, \beta = -.159, F(5, 98) = -1.398, p = .165 \) and cubed identification \( B = -.042, \beta = -.225, F(5, 98) = -1.15, p = .253 \) did not predict bias. In addition, there was no interaction between mortality salience and identification \( B = .070, \beta = .078, F(5, 98) = .813, p = .418 \).

8.3.2. Positive and Negative Affect

An ANOVA was conducted to explore the impact of mortality salience on positive and negative affect. There was no significant main effect for mortality salience on either positive affect \( F(1, 102) = .23, p = .628 \), or negative affect, \( F(1, 102) = .20, p = .649 \).
8.4. Discussion

The results of this study indicate that mortality salience and in-group identification do not have an interactive effect on inter-group bias and that group identification as an individual difference does not moderate the effect of mortality salience on group bias. Instead, mortality salience increased bias and there were no differences in the amount of group bias low and high identifiers exhibited. Nevertheless, consistent with past research (Castano et al., 2002), the results of Study 6 may have been caused by a potential increase of in-group identification under mortality salience.
9.1. Overview of the Findings

Part of the current research (Studies 1-3) has focused on the role of group norms in the relationship between mortality salience and bias. In Study 1, it was found that mortality salience increased participants' adherence to salient in-group norms. When group norms endorsed collectivism, participants that were reminded of their mortality showed stronger inter-group bias compared to those that were not reminded of their mortality. In contrast, when group norms represented individualism, participants for whom mortality was salient exhibited less inter-group differentiation than did those that did not contemplate their mortality. In addition, the content of group norms moderated the effect of mortality salience on group bias. Death salience led to more inter-group bias when group norms prescribed collectivism than when they prescribed individualism.

Study 1 measured inter-individual differentiation as well and no interaction between mortality salience and group norms was found. However, death-related thoughts led to increased amounts of inter-individual bias irrespectively of the salient in-group norm.

In Study 2, further evidence that the content of group norms can moderate the effects of mortality salience on bias was provided. When death-related thoughts were salient, participants displayed more inter-group bias when group norms endorsed discrimination than when they endorsed fairness. In addition, compared to the non-mortality salience condition, under mortality salience, participants exhibited less in-group bias when in-group norms represented fairness. However, when the salient in-group norm was discrimination, mortality salience did not increase inter-group differentiation. Thus,
in this study, only partial support was provided to the view that mortality salience increases group members' motivation to conform to salient in-group norms.

Study 3 focused on the role of out-group norms on the relationship between mortality salience and inter-group bias. The results indicated that, under mortality salience, in-group bias was higher when out-group norms represented discrimination than when they represented fairness. Thus, it was demonstrated that the content of salient out-group norms can also moderate the effects of mortality salience on inter-group bias. This finding that anticipation of out-group members' behavior can influence the amount of bias in-group members exhibit when confronted with the problem of death was extended by the fact that when out-group norms represented fairness, participants in the mortality salience condition exhibited less in-group bias than did those in the non-mortality salience condition.

The current research has also examined the influence of salient identities on the relationship between mortality salience and inter-group bias (Studies 4 and 5). Study 4 primed English and student identities in a cross-categorization context (Doise, 1976), and it was indicated that salient identities can moderate the effects of mortality salience on inter-group bias. It was found that English students for whom mortality was salient exhibited greater amounts of bias towards Scottish students when the active identity was English than when it was students. Furthermore, it was found that when mortality was salient, group members for whom the salient identity was English displayed the greatest amounts of inter-group bias. In addition, mortality salience did not increase inter-group bias when the active category was students.
In Study 5 English and European identities were primed in a re-categorization context (Gaertner et al., 1993). This study provided evidence that the salience of a superordinate category caused less bias, by increasing the attractiveness of out-group members, and that salient identities can moderate the effects of mortality salience. When the active identity was Europeans, participants exhibited less bias compared to those for whom the salient identity was English. In addition, under mortality salience, participants exhibited greater out-group bias when the active identity was English as opposed to Europeans. Furthermore, it was demonstrated that mortality salience accentuates the effects of active social identities on bias. It was found that when the active identity was English, participants in the mortality salience condition exhibited more out-group bias than did those in the non-mortality salience condition. Moreover, compared to the non-mortality salience condition, participants for whom the European identity was salient displayed less group bias when mortality was salient.

The final study (Study 6) examined the potential influence of in-group identification on the relationship between mortality salience and bias. It was found that mortality salience led to increased levels of inter-group bias. In addition, there were no differences in the amount of bias high and low identifiers exhibited.

9.2. Potential Explanations of the Findings

Studies 1 and 2 have demonstrated that the content of group norms can moderate the effects of mortality salience on inter-group bias and that mortality salience can increase group members' adherence to salient in-group norms. These findings are consistent with previous research that has shown that priming particular values can...
eliminate the effects of mortality salience on reactions towards worldview threatening others (Greenberg et al., 1992) and that mortality salience motivates group norm adherence (Gailliot et al., 2008).

A potential explanation of these effects stems from TMT's tenet that mortality salience increases the need to maintain or enhance self-esteem (Greenberg, Solomon, and Pyszczynski, 1997). To the extent that group members are motivated to conform to group norms in order to achieve a positive self-concept (Tajfel and Turner, 1986), death-related thoughts may have increased their motivation to act in accordance with group norms. As group norms are based on a set of values, goals and beliefs that define group members' attitudes and behaviors, participants for whom mortality was salient may have become particularly motivated to uphold beliefs and values important to their group in order to control the anxiety caused by the problem of death. Thus, it is plausible that mortality salience increases adherence to group norms, because meeting the group's standards of value makes it possible for people to feel valuable members of a meaningful reality and as a result, it confers death transcendence.

Another potential explanation of the findings obtained from Studies 1 and 2 is that mortality salience may increase individuals' need to focus on their abstract and symbolic social identities rather than on their personal identities (e.g., Castano et al., 2002). Previous research has shown that high identifiers are more likely to adhere to salient group norms than low identifiers (e.g., Jetten et al., 1997; Jetten et al., 2002) and it seems possible that mortality salience motivates conformity to group norms, because it increases people's need to identify with large and long-lasting entities that will continue to exist after one's death. This argument is consistent with TMT's view that identifying with such
entities promises symbolic immortality (Greenberg, Solomon, and Pyszczynski, 1997). Thus, mortality salience may motivate adherence to group norms because it increases people's need to be a part of a long-lasting cultural system that confers death transcendence.

It is important to note that in Study 2 when the salient in-group norm was discrimination, mortality salience did not increase participants' in-group bias. This result, though may have been due to the explicit relationship between discrimination and bias. As discrimination is unlikely to be a culturally valued behavior, the fact that their group was presented in a negative light may have contradicted the group members' tendency to exhibit great levels of in-group bias when confronted with the concept of death. There is evidence suggesting that personally relevant groups that are viewed or presented in a negative light fail to buffer existential fears as they interfere with group members' efforts to maintain or enhance self-esteem (e.g., Arndt et al., 2002). Thus, the salient information regarding their group that its members discriminate towards others, may have affected the existential security that group norm adherence can provide and in effect, it may have conflicted with participants' motivation to act in accordance with the negative group norm.

An important difference between the two experiments is that, apart from inter-individual group bias, Study 1 measured inter-individual bias as well. The finding that inter-group differentiation was higher when group norms prescribed collectivism than when they prescribed individualism is consistent with past group norm research (Jetten et al., 2006).

However, contrary to predictions, there was no interaction between mortality salience and the group norm of individualism. Instead, death-related thoughts led to...
increased amounts of inter-individual bias irrespectively of the salient in-group norm. Even though this result seems to contradict previous TMT research indicating that mortality salience leads to increased adherence to salient in-group norms (Gailliot et al., 2008), it is not inconsistent with TMT's view that meeting cultural standards of value confers death transcendence. To the extent that making money is a culturally valued achievement that promises symbolic immortality (Greenberg, Solomon, and Pyszczynski, 1997), it seems reasonable that participants for whom mortality was salient allocated more money to themselves than to others. Thus, it seems that in Study 2 participants preferred to control the anxiety mortality salience causes by allocating more money to themselves than to fellow in-group members rather than by conforming to salient in-group norms.

Study 3 also focused on the role of group norms on the relationship between mortality salience and inter-group bias, but, unlike Studies 1 and 2, it examined the potential role of salient out-group norms. The results of this study indicated that the content of salient out-group norms moderates the effect of mortality salience on inter-group bias. These results support the argument that anticipation of out-group members' behavior can influence the amount of bias in-group members exhibit when confronted with the problem of death. Further evidence supporting this view was provided by the fact that when out-group norms represented fairness, participants in the mortality salience condition exhibited slightly less in-group bias than did those who were not reminded of death.

A potential explanation of these findings is that mortality salience increased participants' need for self-esteem. As a result, in Study 3, death-related thoughts may
have intensified participants' motivation to praise those that were perceived as upholding cultural standards of value (e.g., Rosenblatt et al., 1989) by being fair towards them. To the extent that being fair is a culturally-valued behavior, when the out-group was presented in a positive light, mortality salience decreased the level of inter-group bias exhibited by in-group members.

However, the self-esteem perspective does not seem to account for the finding that mortality salience did not lead to increased group bias when the out-group norm was discrimination. If participants had been particularly motivated either to discriminate towards those perceived as violating cultural standards or to discriminate towards those expected to be unfair with other groups including their own, then death-related thoughts combined with a salient out-group norm of discrimination should have produced the highest amount of inter-group bias.

Nevertheless, in previous research it was indicated that when the salient out-group norm represented discrimination, in-group bias was only slightly increased and in-group favoritism was not influenced by the salience of the fairness out-group norm (Jetten et al., 1996). Thus, the content of out-group norms may not be a strong predictor of inter-group bias. This would explain the finding that when out-group norms represented discrimination, participants in the mortality salience condition did not exhibit more inter-group bias than did those that were not reminded of their mortality. It would also account for the fact that out-group norms had no significant effect on inter-group bias when mortality was not salient.

Studies 4 and 5 focused on active identities and overall, they provided convergent evidence that the salience of social categories can moderate the effects of mortality salience.
salience on bias and death-related thoughts can particularly increase people's motivation, to act in accordance to salient identities. These findings seem to be consistent with past research indicating that mortality salience enhances endorsement of the values that are related to the social identity that is salient at the time (Halloran and Kashima, 2000).

A potential explanation of these findings is that since group members are motivated to favor their group and discriminate against other groups in order to achieve a positive self-concept (Tajfel and Turner, 1986) and mortality salience increases the need for self-esteem, death-related thoughts may have intensified individuals' reactions towards in-group and out-group members in order to buffer the anxiety caused by death salience. The direction of these reactions, however, seems to depend on the social category that is salient at the time. Thus, in Study 4 the activation of the national identity (English) intensified the differences between the in-group (English students) and the out-group (Scottish students) and participants for whom mortality was salient may have been particularly motivated to maintain or enhance their self-esteem and in effect, to support similar others and to discriminate against different others by exhibiting especially high levels of inter-group bias. Similarly, in Study 5, the activation of the national identity (English) accentuated the differences between the in-group (English) and the out-group (French) and as participants under mortality salience may have been particularly motivated to protect their self-esteem, they exhibited increased bias towards different others. Moreover, consistent with findings of previous research that has tested the common in-group identity model (e.g., Gaertner et. al, 1989; Gaertner et al., 1990) the salience of a super-ordinate identity (Europeans) that included both groups (English and French) reduced out-group bias, by altering the participants' perceptions of group.
boundaries. It seems plausible that mortality salience may have increased the need for self-esteem, and in effect, participants' motivation to exhibit less bias towards targets that, due to the salience of the super-ordinate category, were perceived as fellow in-group members.

Even though the findings of Studies 4 and 5 seem to be consistent with the view that mortality salience increases the need for self-esteem and as a result, individuals are particularly motivated to act in accordance with salient identities; the group membership perspective can also account for these findings. Since active social identities within a cross-categorization or a re-categorization setting influence the type of inter-group comparisons that are relevant at the time (e.g., Turner et al., 1987; Doise, 1976; Gaertner et al., 1993) and to the extent that death-related thoughts increase people's need to focus on their social identities (e.g.; Castano et al, 2002), salient identities could have complemented the effects of mortality salience. This perspective would explain the fact that when mortality salience was combined with an active identity that accentuated the differences between the in-group and the out-group; participants exhibited the highest amount of bias: It would also account for the finding that when a common-in-group identity was salient (Study 5), participants that encountered the problem of death exhibited the least amount of bias as they were particularly motivated to focus on the more inclusive social category. Thus, the aforementioned findings may have been a result of participants' intensified need to identify with a large and long-lasting entity that confers death transcendence.

Unlike Study 5, the results of Study 4 partially supported the prediction that mortality salience accentuates the effects of active social categories on bias. When the
active identity was students, participants in the mortality-salience condition did not exhibit significantly less in-group bias than did those in the non-mortality salience condition. It should be noted, however, that in the non-mortality salience condition inter-group differentiation was particularly low especially when the salient identity was students. This might have happened because the out-group in Study 4 (association of Scottish universities) was a bogus one. Furthermore, the particularly high levels of inter-group bias participants for whom mortality was salient exhibited when their national identity was salient might have been partly-caused by an enhancement of group entitativity. Previous research has indicated that increased in-group entitativity mediates the effects of death-related thoughts on inter-group bias (Castano et al., 2002). To the extent that mortality salience enhances individuals' motivation to perceive the in-group as a real entity and in effect, their motivation to exhibit increased in-group bias, death-related thoughts might also enhance their need to perceive the out-group as a real entity and in effect, their motivation to discriminate against it. Nevertheless, the salience of the student identity in Study 4 intensified the similarities between the in-group and the out-group and as a result, when mortality was salient it prevented participants from exhibiting great levels of inter-group differentiation.

Unlike highly accessible social categories, highly important identities did not influence the effect of mortality salience on bias. As Study 6 indicated, the salience of death-related thoughts led to higher levels of inter-group bias irrespectively of the importance participants attached to their group membership. This finding seems to be consistent with past research indicating that mortality salience increases the need to maintain or enhance self-esteem and as a result, it leads to particularly positive reactions.
towards similar others and particularly negative reactions towards different others (e.g., Greenberg et al., 1990). Nevertheless, it also seems to be consistent with the view that mortality salience increases bias via an increased motivation of people's need to identify with their group (e.g., Castano et al., 2002). It is possible that mortality salience increased participants' level of identification and as a result, high and low identifiers exhibited similar amounts of inter-group bias.

Another potential explanation for the results of Study 6 is the inconsistent relationship between identification and inter-group bias. Past research has shown that group identification is an unreliable predictor of inter-group differentiation and due to the wide range of meaningful aspects of group members' identities, the relationship between identification and inter-group bias can be particularly complex to be captured (Brown et al., 1986). Thus, the current findings, such as the fact that there were no differences between low and high identifiers when mortality was not salient, may have been due to the inconsistent relationship between in-group identification and bias.

Finally, it should be noted that the results of the present studies are consistent with previous research on TMT indicating that affect does not influence the effects of mortality salience (Greenberg et al., 1995). In the present studies, self-report affect scales were administered prior to the dependent measurements and even though mortality salience increased negative affect in one of the studies (Study 2), neither positive nor negative affect influenced any of the current results.
9.3. Implications of the Findings

Considering the important role of cultural norms and cultural standards within TMT, the lack of research about situationally induced salience of cultural norms is surprising. Norms are important components of worldviews that help to create an orderly, symbolic reality that people within a culture accept and which allows them to view life as meaningful and themselves, by following the norms, as valuable (e.g., Berger and Luckmann, 1967). Furthermore, cultural worldviews transmit information across large numbers of people and across succeeding generations and cultural entities, more often than not survive individuals. In turn, behaving according to the normative standards of these social aggregates should provide death transcendence to the individual group member. Consequently, it is important for TMT research to take into account norm focus.

The findings of Studies 1-3 are important because they show in a number of ways the predictive power of group norms. By demonstrating that salient group norms moderate the effect of mortality salience on inter-group bias, these findings support the idea that the content of group norms influences the manner in which group members react under existential threat. Specifically, when group norms are implicitly or explicitly pro-bias, mortality salience leads to increased bias, whereas when group norms are implicitly or explicitly anti-bias, the salience of death-related thoughts leads to decreased bias.

The results obtained from Studies 1-3 also suggest that the degree to which salient norms have an impact on people's attitudes and behavior depends partly on certain motivational factors. The present research shows that mortality salience is one such factor. These same results expand TMT by demonstrating that norm focus is an important factor in guiding the cognitions enacted to quell death-related concerns. Furthermore,
these findings generate more specific hypotheses about which particular cultural standards people should strive to live up to under conditions of existential threat. To summarize, mortality salience increases adherence to the relevant cultural norm that is most accessible or salient at the moment.

Although this theorizing enables better prediction of people's responses to mortality salience inductions, it simultaneously reveals the complexity of the cultural worldview. Within a culture and across time, very different and sometimes contradictory standards of behavior are valued: Although ambiguity exists in the norms that culture suggests to follow, in many situations people are provided with situational norms that guide the way they should act in that particular situation if they are to be valued within their culture. This may mean behaving differently from situation to situation, sometimes in possible contradiction with dispositional norms.

As the current theorizing suggests, it seems possible to strive to live up to quite different standards more or less simultaneously by pursuing them in different situations. For example, people who are rich and competitive also sometimes donate large amounts of money to charity. Thus, people can be highly self-interested in one domain and, at the same time, more society-oriented in another domain: This change of normative context might be either the result of changed norm focus (making money versus helping others) or changed social identity focus (businessperson versus regular charity supporter).

Considering that people possess various social identities with each one of them being associated with distinct cultural norms and standards, the lack of TMT research about the role of salient social categories is surprising. As social identities usually outlive individuals and they are a source for self-esteem, behaving according to these cultural norms...
entities should protect individual group members from threatening death-related thoughts. Thus, TMT research should take into account social identity focus.

The findings of Studies 4 and 5 are important because they demonstrate the predictive power of salient identities. By showing that salient identities moderate the effect of mortality salience on inter-group bias, these findings support the notion that group members' reactions to the threat mortality salience poses are influenced by the type of the social identity that is active. Specifically, when the salient identity intensifies the differences between the subgroups, death salience leads to increased bias, whereas when the salient identity enhances the similarities between the subgroups, mortality salience leads to decreased bias.

Moreover, the results obtained from Studies 4 and 5 are important because they demonstrate that mortality salience is a motivational factor that affects the impact active social identities have on people's attitudes. Hence, these findings extend TMT research and enable the generation of specific hypotheses about the particular group membership people will act according to when they encounter the problem of death. In sum, mortality salience increases people's motivation to act in accordance to the social identity that is most accessible or salient at the moment.

Even though this theorizing enables better prediction of people's responses to mortality salience manipulations, it also reveals the complexity of social identities, as within a culture, different groups that may have a problematic relationship with each other, are valued. However, the accessibility of a social identity may increase or decrease depending on contextual factors. Thus, although ambiguity exists in terms of the social identity people should act in accordance to, there are situational guides that suggest.
which particular identity may be the most appropriate one at the time. Hence, people may behave differently from situation to situation, sometimes in possible contradiction with their group memberships of dispositional importance and attempt to act in accordance to different social identities in different situations.

So far the discussion has focused on the results derived from assessing people’s behavior on an inter-group level. Nevertheless, when inter-individual bias was measured (Study 1), an interesting pattern emerged: Mortality salience increased inter-individual bias and did not interact with salient group norms. Even though critics could say that this finding suggests that mortality salience and group norms can only interact on a group level, there is an alternative possibility which should be considered. Specifically, mortality salience may have increased participants’ motivation to abide by the dispositional cultural norm of making money. To the extent that mortality salience increases people’s need for self-esteem and self-serving behavior, such as allocating more culturally valued resources to oneself, can enhance self-esteem, this finding does not contradict TMT tenets. Nevertheless, it does extend TMT research by indicating the width of the array of people’s reactions to death salience. When mortality is salient, people can maintain and enhance their self-esteem not only via biased reactions towards out-group members, but also by biased reactions towards fellow in-group members.

Although speculative, outside the inter-group context, mortality salience may be in the service of upholding norms or values that have a dispositional importance to the individual. An important implication of this theorizing is that mortality salience can have negative effects on intra-group dynamics and threaten the group’s harmony. Cultural norms have varied facets and people may focus on different aspects of their worldview.
standards. Consequently, under certain conditions, such as within a company where someone's performance is evaluated on the basis of other employees' achievements, mortality salience can lead to increased inter-individual competition and hostility.

This theorizing reveals the potential importance of individual differences within TMT. However, the findings of Study 6 seem to imply that compared to various situational factors, certain dispositional ones may have a different kind of impact on the effects of mortality salience. In-group identification, for example, seems to mediate the effects of mortality on bias (Castano et al., 2002), but does not appear to moderate these effects.

9.4. Limitations

Despite the importance of the current findings, the current research involved several weaknesses. An important limitation was that the sample sizes in Studies 1-5 were small. This could be the reason for the null effects of the current research. Even though this criticism may be valid, most of the results supported the predictions. Furthermore, as it has already been discussed, there are also theoretical grounds to explain the obtained null effects.

Another weakness was the lack of control groups in the group norms and salient identities factors. In Studies 1-3, for example, there were not any no-norm conditions. This is important since no comparisons between salient norms conditions and no norms conditions were made. A significant statistical difference between a no-norm condition and a salient norm condition could have demonstrated even more convincingly the important
role of salient group norms on the relationship between mortality salience and bias as well as the motivating role of mortality salience to act in accordance to salient norms.

In addition, participants' personal importance of the group norms that were manipulated was not measured. As previous SIT and TMT research on bias has demonstrated the importance of personal values (e.g., Jetten et al., 2006; Greenberg et al., 1992, Study 2), a relevant measurement could perhaps contribute in the explanation of the current findings. If, for example, being fair was a personally important value for the participants of Study 2, then this could account for the finding that in the mortality salience condition and when the group norm was discrimination they did not exhibit particularly high levels of bias. Also, in Study 6 identification was measured only before the mortality salience manipulation. In effect, it is not clear whether there were any fluctuations of group identification between the manipulation and the bias measurement.

Finally, taking into consideration that self-esteem can account for most of the obtained results, critics could argue that measuring or manipulating this construct was necessary. However, the purpose of the current research was to investigate in a unique yet straightforward way the potential role of factors that have rarely been examined on the relationship between mortality salience and bias rather than to investigate the reasons these factors may affect this relationship. Furthermore, comparing and contrasting the role of self-esteem within SIT and TMT was out of the scope of the current research. Even though both theories suggest that self-esteem is related to bias, it is still a notion that is conceptualized in a radically different way within SIT and TMT. More specifically, SIT suggests that people derive their self-esteem from their group and in effect, they are motivated to make biased inter-group comparisons in order to view
themselves positively. However, unlike SIT, TMT addresses the issue of why people need self-esteem in the first place and posits that group members need it in order to control the potential for terror that the awareness of the inevitability of their death can create. Thus, within this existential theory, the ultimate purpose of biased inter-group comparisons is to convey death transcendence and self-esteem is a defense mechanism that can protect people from the potential terror that death-related thoughts can create. Hence, as past TMT research has shown, when people contemplate their personal death, they are particularly motivated to protect their self-esteem by exhibiting bias.

9.5. Future Directions

Nevertheless, the role of self-esteem on people’s motivation to act in accordance with salient group norms and active social identities when death-related thoughts are salient is an issue that warrants further investigation. Previous research that has focused on the relationship between self-esteem and mortality salience has shown that contextually increased self-esteem and high dispositional self-esteem counteract the typical effects of death salience (Harmon-Jones et al.), whereas people with low self-esteem engage in particularly strong worldview defense when death-related thoughts are salient compared to those with moderate self-esteem (Simon et al., 1996). To the extent that mortality salience increases people’s motivation to act in accordance with salient group norms and active social identities in order to maintain or enhance self-esteem, it seems possible that dispositional high or contextually increased self-esteem could counteract such effects, whereas particularly low self-esteem could further accentuate them. Furthermore, since both the self-esteem and the group membership perspective can account for the majority of the results of the current studies, future research could attempt
to shed light on the alternative accounts by examining in a direct way their relative strength.

Future research could also focus on the relative role of dispositional and contextual factors within the mortality salience paradigm. For example, under mortality salience, individuals for whom being fair is very important may not be particularly motivated to conform to a salient in-group norm that prescribes discrimination and in effect, may not exhibit increased levels of inter-group bias. Similarly, under mortality salience, German individuals for whom being a German is very important, may not be particularly motivated to act in accordance with a salient German identity, when they are reminded of the second world war. Hence, under such circumstances, they may not exhibit increased levels of in-group bias. Examining whether the personal importance of a value and of a social identity can influence the extent to which the results of the current studies generalize to different types of group norms and social identities, could be a fruitful line of future research.

9.6. Conclusive Remarks

The present studies extend existing research by demonstrating that the content of salient in-group and out-group norms and salient identities can moderate the effects of mortality salience on bias and death-related thoughts can motivate people to act in accordance with salient group norms and active social identities. Even though previous research within the TMT realm has indicated that many of the effects of mortality salience are negative, the current research has revealed that individuals can control the potential for terror death concerns can create in positive manners. It seems that clarifying
the psychological mechanisms that underlie the avenues available to individuals in their quest for symbolic immortality is an important task for future enquiry.
References


Appendix A

Please write a short paragraph describing the emotions that the thought of your own death arouses in you.

Please write a short paragraph describing the emotions that watching television arouses in you.
Appendix B

This measure consists of a variety of words describing different feelings and emotions that you may be experiencing at the moment. Based on the 5-point scale provided below, please mark the appropriate answer in the space next to each word.

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<td>Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Research that was conducted in 2007 investigated the values and attitudes of Plymouth students. In this research 845 students took part. Below we give a bit more information about the results of the study. Please read this information carefully as we will ask you questions about it.

Conclusions of the 2007 study on the attitudes of Plymouth students.

From analyses of open-ended responses, a list of values and beliefs that are important to Plymouth students was collated. At the top of the list were the values “collectivism” and “group-orientation”.

Collectivism is a term used to stress human inter-dependence and the importance of a group. Collectivists focus on community and society and seek to give priority to group goals over individual goals.

It was evident from responses participants gave on a variety of tasks, that Plymouth students believe that combining their strengths and skills is the best guarantee for academic success.

Generally, it was concluded that collectivism and cooperation are important values to Plymouth students.

Please circle a number from 1 to 9 indicating which word best describes your university.

<table>
<thead>
<tr>
<th>Individualist</th>
<th>Collectivist</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
Research that was conducted in 2007 investigated the values and attitudes of Plymouth students. In this research 845 students took part. Below, we give a bit more information about the results of the study. Please read this information carefully as we will ask you questions about it.

Conclusions of the 2007 study on the attitudes of Plymouth students.

From analyses of open-ended responses, a list of values and beliefs that are important to Plymouth students was collated. At the top of the list were the values "individualism" and "self-orientation".

Individualism is the belief in the primary importance of the individual and in the virtues of self-reliance and personal independence. Individualists seek to give priority to individual goals over group goals.

It was evident from responses participants gave on a variety of tasks, that Plymouth students believe that relying on their individual strengths and skills is the best guarantee for academic success.

Generally, it was concluded that individualism and personal independence are important values to Plymouth students.

Please circle a number from 1 to 9 indicating which word best describes your university.

<table>
<thead>
<tr>
<th>Individualist</th>
<th>Collectivist</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
Appendix D

Please allocate resources between the universities of Plymouth and Exeter. Make sure that you choose only one of the combinations of points provided to you below. For example, if you decide to allocate 70% of the available funds to the university of Plymouth, then you will have to allocate 30% to the university of Exeter.

Funds available for improving teaching facilities.

<table>
<thead>
<tr>
<th>Plymouth</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exeter</td>
<td>100%</td>
<td>90%</td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Funds available for improving IT facilities.

<table>
<thead>
<tr>
<th>Plymouth</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exeter</td>
<td>100%</td>
<td>90%</td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Funds available for improving accommodation facilities.

<table>
<thead>
<tr>
<th>Plymouth</th>
<th>0%</th>
<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exeter</td>
<td>100%</td>
<td>90%</td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Please allocate resources between yourself and a fellow Plymouth student. Make sure that you choose only one of the combinations of points provided to you below. For example, if you decide to allocate 70% of the available funds to yourself, then you will have to allocate 30% to a fellow Plymouth student.

<table>
<thead>
<tr>
<th>Yourself</th>
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<th>10%</th>
<th>20%</th>
<th>30%</th>
<th>40%</th>
<th>50%</th>
<th>60%</th>
<th>70%</th>
<th>80%</th>
<th>90%</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fellow student</td>
<td>100%</td>
<td>90%</td>
<td>80%</td>
<td>70%</td>
<td>60%</td>
<td>50%</td>
<td>40%</td>
<td>30%</td>
<td>20%</td>
<td>10%</td>
<td>0%</td>
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</tbody>
</table>
Appendix E

Descriptive Statistics

<table>
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<th>GN</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Individualism</td>
<td>4.8431</td>
<td>.97978</td>
<td>17</td>
</tr>
<tr>
<td>MS</td>
<td>Collectivism</td>
<td>7.6222</td>
<td>2.01134</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>6.1458</td>
<td>2.07552</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Individualism</td>
<td>5.4510</td>
<td>1.04709</td>
<td>17</td>
</tr>
<tr>
<td>NMS</td>
<td>Collectivism</td>
<td>6.3137</td>
<td>1.34097</td>
<td>17</td>
</tr>
<tr>
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<td></td>
<td>5.8824</td>
<td>1.26300</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5.1471</td>
<td>1.04508</td>
<td>34</td>
</tr>
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<td>Total</td>
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<td>6.9271</td>
<td>1.78752</td>
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<td>Total</td>
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<td>6.0101</td>
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Tests of Between-Subjects Effects

<table>
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<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Noncent. Parameter</th>
<th>Observed Power*</th>
</tr>
</thead>
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<td>2414.669</td>
<td>1.265E3</td>
<td>.000</td>
<td>1265.398</td>
<td>1.000</td>
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<td>1.058</td>
<td>.308</td>
<td>1.058</td>
<td>.269</td>
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<td>GN</td>
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<td>1</td>
<td>54.549</td>
<td>28.586</td>
<td>.000</td>
<td>28.586</td>
<td>1.000</td>
</tr>
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<td>MS * GN</td>
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<td>15.104</td>
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<td>.007</td>
<td>7.915</td>
<td>.872</td>
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<td></td>
<td></td>
<td></td>
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<td>Total</td>
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<td></td>
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<tr>
<td>Corrected Total</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

a. R Squared = .368 (Adjusted R Squared = .338)
b. Computed using alpha = .05
## Descriptive Statistics

### Dependent Variable: Bias

<table>
<thead>
<tr>
<th></th>
<th>GN</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Individualism</td>
<td>6.4118</td>
<td>2.18114</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Collectivism</td>
<td>6.3333</td>
<td>1.67616</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6.3750</td>
<td>1.93023</td>
<td>32</td>
</tr>
<tr>
<td>NMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Individualism</td>
<td>5.5294</td>
<td>1.32842</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Collectivism</td>
<td>5.2353</td>
<td>2.35927</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>5.3824</td>
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<td>Total</td>
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<td>5.9706</td>
<td>1.83378</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5.7500</td>
<td>2.10988</td>
<td>32</td>
</tr>
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<td></td>
<td>Total</td>
<td>5.8636</td>
<td>1.96027</td>
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</table>

## Tests of Between-Subjects Effects

### Dependent Variable: Bias

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Noncent. Parameter</th>
<th>Observed Power&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>17.028&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3</td>
<td>5.676</td>
<td>1.512</td>
<td>.220</td>
<td>4.536</td>
<td>.512</td>
</tr>
<tr>
<td>Intercept</td>
<td>2273.246</td>
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<td>2273.246</td>
<td>.605561</td>
<td>.000</td>
<td>605.561</td>
<td>1.000</td>
</tr>
<tr>
<td>GN</td>
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<td>1</td>
<td>.571</td>
<td>.152</td>
<td>.698</td>
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<td>.125</td>
</tr>
<tr>
<td>MS * GN</td>
<td>.191</td>
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<td>.191</td>
<td>.051</td>
<td>.822</td>
<td>.051</td>
<td>.108</td>
</tr>
<tr>
<td>Error</td>
<td>232.745</td>
<td>62</td>
<td>3.754</td>
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<td></td>
</tr>
<tr>
<td>Total</td>
<td>2519.000</td>
<td>66</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>249.773</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> R Squared = .068 (Adjusted R Squared = .023)

<sup>b</sup> Computed using alpha = .05
Research that was conducted in 2001 investigated the values and attitudes of Exeter students, in particular those relating to resource allocations. In this research 845 Exeter students took part. Below we give a bit more information about the results of the study. Please read this information carefully as we will ask you questions about it.

Conclusions of the 2001 study on resources allocations among Exeter students.

From analyses of open-ended responses, we collated a list of values and beliefs that are important to Exeter students. At the top of the list were the values “fairness” and “equality for all”.

This was also evident from responses Exeter students gave on resource allocation tasks. It was important for Exeter students to allocate the same amount of resources between their university and other universities.

For instance, the majority of Exeter students indicated that improving the facilities of the university of Exeter is equally important as improving the facilities at other universities.

Generally, we concluded that fairness was an important value to Exeter students.
Research that was conducted in 2001 investigated the values and attitudes of Exeter students, in particular those relating to resource allocations. In this research 845 Exeter students took part. Below we give a bit more information about the results of the study.

Please read this information carefully as we will ask you questions about it.

Conclusions of the 2001 study on resources allocations among Exeter students.

From analyses of open-ended responses, we collated a list of values and beliefs that are important to Exeter students. At the top of the list were the values “interest in one’s benefits” and “interest in one’s group benefits”.

This was also evident from responses Exeter students gave on resource allocation tasks. It was important for Exeter students to allocate more resources to their university than to other universities.

For instance, the majority of Exeter students indicated that improving the facilities of the university of Exeter is more important than improving the facilities at other universities.

Generally, we concluded that Exeter students are more interested in benefits for themselves than for students of other universities.
Appendix H

Please allocate resources between the universities of Exeter and Bristol. Make sure that you choose only one of the combinations of points provided to you below. For example (see below), if you decide to allocate £70,000 to the university of Exeter, then you will have to allocate £50,000 to the university of Bristol.

Exeter £90,000 £80,000 £70,000 £60,000 £50,000 £40,000 £30,000
Bristol £30,000 £40,000 £50,000 £60,000 £70,000 £80,000 £90,000

There are limited funds available for improving catering facilities in the universities. From the £120,000 available, please circle one of the following distribution patterns, allocating funds between the universities:

Exeter £90,000 £80,000 £70,000 £60,000 £50,000 £40,000 £30,000
Bristol £30,000 £40,000 £50,000 £60,000 £70,000 £80,000 £90,000

The funds available for improving sporting facilities are also limited. From the £80,000 available, please circle one of the following distribution patterns, allocating funds between the universities:

Exeter £70,000 £60,000 £50,000 £40,000 £30,000 £20,000 £10,000
Bristol £10,000 £20,000 £30,000 £40,000 £50,000 £60,000 £70,000

The British Council offers £800,000 for improving libraries and IT facilities in universities. Please circle one of the following distribution patterns, allocating funds between the universities:

Exeter £700,000 £600,000 £500,000 £400,000 £300,000 £200,000 £100,000
Bristol £100,000 £200,000 £300,000 £400,000 £500,000 £600,000 £700,000
Appendix 1

Please circle a number from 1 to 9 indicating the extent to which you agree with the following statements.

Exeter students are considerate of the needs of students from other universities.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
</tbody>
</table>

Exeter students are discriminative towards students from other universities.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
</tbody>
</table>

Exeter students are fair towards students from other universities.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
</tbody>
</table>

Exeter students are only concerned about their own benefits.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 2 3 4 5 6 7 8 9</td>
<td></td>
</tr>
</tbody>
</table>
### Descriptive Statistics

<table>
<thead>
<tr>
<th>Source</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td>5.4444</td>
<td>.84202</td>
<td>15</td>
</tr>
<tr>
<td>Fairness</td>
<td>4.1333</td>
<td>.21082</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>4.7889</td>
<td>.89906</td>
<td>30</td>
</tr>
<tr>
<td>NMS</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
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<td>.88072</td>
<td>15</td>
</tr>
<tr>
<td>Fairness</td>
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<td>.46576</td>
<td>15</td>
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<td>Total</td>
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<tr>
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### Tests of Between-Subjects Effects

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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Noncent. Parameter</th>
<th>Observed Pearson Power</th>
</tr>
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<tr>
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<td>5.220</td>
<td>11.958</td>
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<td>Intercept</td>
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<td>3.196E3</td>
<td>.000</td>
<td>3198.344</td>
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<td>.067</td>
<td>.153</td>
<td>.697</td>
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<td>31.377</td>
<td>1.000</td>
</tr>
<tr>
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<td>1.896</td>
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<td>.042</td>
<td>4.344</td>
<td>.661</td>
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<td>.437</td>
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<td></td>
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<td></td>
<td></td>
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a. R Squared = .390 (Adjusted R Squared = .358)
b. Computed using alpha = .05
### Descriptive Statistics

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<th>Source</th>
<th>Mean</th>
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</tr>
</thead>
<tbody>
<tr>
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### Tests of Between-Subjects Effects

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a. R Squared = .245 (Adjusted R Squared = .205)
b. Computed using alpha = .05
Appendix L

Please generate up to three things that you and other English people in general do relatively often, rarely, well and badly.

a) Often 1.  

2.  

3.  

b) Rarely 1.  

2.  

3.  

c) Well 1.  

2.  

3.  

d) Badly 1.  

2.  

3.
Please generate up to three things that you and other university students in general do relatively often, rarely, well and badly.

a) Often 1.

2.

3.

b) Rarely 1.

2.

3.

c) Well 1.

2.

3.

d) Badly 1.

2.

3.
Appendix M

Descriptive Statistics

Dependent Variable: Bias

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Tests of Between-Subjects Effects

Dependent Variable: Bias

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a. R Squared = .243 (Adjusted R Squared = .205)
b. Computed using alpha = .05
Appendix N.

Based on the 8-point scale provided below, please indicate the extent to which the following traits are applied to the French.

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Appendix O

Descriptive Statistics

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<th>Observed Power^b</th>
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a. R Squared = .507 (Adjusted R Squared = .477)
b. Computed using alpha = .05
We are all members of different social groups or social categories. We would like you to respond to the following statements on the basis of how you feel about being a member of the university of Plymouth. Please circle a number from 1 to 7 indicating the extent to which you agree or disagree with the following statements.

**Overall, my group membership has very little to do with how I feel about myself**

<table>
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<th>Strongly agree</th>
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<td>4</td>
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<td>5</td>
<td>6</td>
</tr>
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<td>7</td>
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**The group I belong to is an important reflection of who I am**

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
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<td>3</td>
<td>4</td>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
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</tr>
</tbody>
</table>

**My group membership is unimportant to my sense of what kind of a person I am**

<table>
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</thead>
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<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7</td>
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</tr>
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**In general, belonging to my group is an important part of my self image**

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</tr>
</thead>
<tbody>
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### Appendix Q

#### Variables Entered/Removed

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- a. All requested variables entered.
- b. Dependent Variable: Bias

#### Model Summary

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- a. Predictors: (Constant), Interaction, MS, ID
- b. Dependent Variable: Bias

#### ANOVA

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- a. Predictors: (Constant), Interaction, MS, ID
- b. Dependent Variable: Bias

#### Coefficients

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- a. Dependent Variable: Bias
Appendix R

Variables Entered/Removed

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<th>Method</th>
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a. All requested variables entered.
b. Dependent Variable: Bias

Model Summary

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a. Predictors: (Constant), Cubed, MS, Interaction, Squared, ID

ANOVA

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a. Predictors: (Constant), Cubed, MS, Interaction, Squared, ID
b. Dependent Variable: Bias

Coefficients

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a. Dependent Variable: Bias