



THE EFFECT OF PHYSICAL CLEANSING ON MORAL JUDGMENT AND MORAL  
BEHAVIOR AMONG UNDERGRADUATE STUDENTS

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# EFFECT OF PHYSICAL CLEANSING ON MORAL JUDGMENT, MORAL BEHAVIOR

A Dirtless Self: The Effect of Physical Cleansing on Moral Judgment and Moral Behavior

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This research project is submitted in partial fulfilment of the requirements for the Bachelor of Social Science (Hons) Psychology, Faculty of Arts and Social Science, Universiti Tunku Abdul Rahman.  
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EFFECT OF PHYSICAL CLEANSING ON MORAL JUDGMENT, MORAL BEHAVIOR

**APPROVAL FORM**

This research paper attached hereto, entitled “The Effect of Physical Cleansing on Moral Judgment and Moral Behavior among Undergraduate Students” prepared and submitted by Choo Jia Sheng and Lee Xiao Si in partial fulfillment of the requirements for the Bachelor of Social Science (Hons) Psychology is hereby accepted.

\_\_\_\_\_

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# EFFECT OF PHYSICAL CLEANSING ON MORAL JUDGMENT, MORAL BEHAVIOR

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### **Abstract**

Physical cleansing can be simply known as the act of cleansing oneself. Previous literature suggested that there has been a psychological association between physical purity and moral purity. However, previous studies had provided different contradict results in suggesting the effect of physical cleansing on moral psychology from different perspectives. To clear the doubts, this current experimental study aims to clarify the effect of physical cleansing action on moral judgment and immoral behavior among undergraduates in Malaysia. With the utilization of an experimental design and a between-subjects research design, the difference between hand wiping and non-hand wiping condition had been clearly tested. 40 participants who were unknown of the nature of the study were recruited through purposive sampling method. Two tasks were given to the participants in order to measure moral judgment and cheating behavior. The order of the experimental tasks were counterbalanced to maximize the control over sequential effects. The two independent sample t-tests has found that there is no significant difference between physical cleansing and moral judgment. Furthermore, there is also a non-significant effect found for physical cleansing and immoral behavior. In addition, there is also no gender differences in moral judgment and immoral behavior. The underlying determinants of the results could be due to the differences of participants' response effort, research settings, and the amount of incentives. These determinants could affect the participants' motivation to conduct immoral behaviors such as cheating. The findings of the current research could help in contributing to the literature of the effect of physical cleansing on moral psychology. Therefore, future research should take participants' response effort into account to reduce the profound effect caused by low motivation in generating moral judgment, and conducting immoral behavior.

*Keywords:* Physical cleansing, moral judgment, immoral behavior, gender differences



**DECLARATION**

Hereby, we declare that this project entitled “The Effect of Physical Cleansing on Moral Judgment and Moral Behavior among Undergraduate Students” is a record of original work done by Choo Jia Sheng and Lee Xiao Si under the guidance of Ms. Natasha Amira Binti Hushairi.

The project had submitted to the Universiti Tunku Abdul Rahman in the partial fulfilment of the requirements for Bachelor Degree of Social Science (HONS) Psychology. The due acknowledgement has been given in the bibliography and references to ALL sources, be it printed, electronic or personal.

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## List of Abbreviations

FAS	Faculty of Arts and Social Sciences
FBF	Faculty of Business and Finance
FICT	Faculty of Information and Communication Technology
FEGT	Faculty of Engineering and Green Technology
FOS	Faculty of Science
ICS	Institute of Chinese Studies
FOUNDATION	Foundation
FYP	Final Year Project
OCD	Obsessive Compulsive Disorder
RAT	Remote Associates Test
UTAR	Universiti Tunku Abdul Rahman

## Chapter 1

### Introduction

#### 1.1 Background of Study

Physical cleansing is a category of actions which serve as a fundamental purpose of washing off or getting rid of visible dirt or germs, in order to protect human from possible contamination. Physical cleansing is as common as our daily activities during our daily lives such as eating and sleeping. Even though physical cleansing behaviors such as hand washing, taking a bath, brushing tooth play a basic role to protect human being from contamination and maintain physiological health, past studies had suggested that physical cleansing also affect us psychologically and emotionally (Kaspar, Krapp, & König, 2015). One of the example of physical sensation from physical cleansing can affect our emotional feeling is that physical cleansing has a direct removal effect on feeling of disgust (Landy & Goodwin, 2015).

Firstly, this experimental study would like to investigate the effect of physical cleansing on moral judgment. The concept stemmed from the theory of 'Macbeth effect' which describe the relationship between physical cleanliness and moral purity. According to the study by Earp, Everett, Madva and Hamlin (2014), the concept of the Macbeth effect suggested that feeling of guilt or immoral will stimulate an urge of physical cleansing and physical cleanliness correlates positively with one's perceived moral purity or 'moral cleanliness'. The concept of the theory developed from a scene in the narrative Shakespeare's Macbeth where the character, Lady Macbeth attempting to get rid of her feeling of sin and guilt as a murderer by washing her hands. Based on the Macbeth effect theory, one's physical cleanliness does not only influence one's feeling of moral purity, but also have subsequent effect on moral judgment. According to Landy and Goodwin (2015), the social intuitionist model developed by Haidt (2001) suggested that

individual's moral intuition directly influence his moral judgment while moral reasoning or rational thinking plays a role as a post-justifier of one's moral judgment. In other words, one would produce a particular moral emotion towards an incident, evaluating the incident as moral or immoral on an affective or emotional dimension. For instance, the moment when a person witnessed an incest case reported on newspaper, the person would firstly feel disgust towards the incident intuitively. The social intuitionist model emphasized that moral judgment is predominantly occupied by moral emotions, meaning that one will 'feel' something rather than 'think' something is morally unacceptable (Paxton, Ungar, & Greene, 2012).

As suggested by the Macbeth effect, physical cleanliness correlates with perceived moral cleanliness or moral purity which was an emotional feeling. Since moral judgment was described as a direct result of moral intuition which includes moral emotion, and physical sensation from physical cleansing can affect individual emotionally, these are the evidences supporting that physical cleanliness would cause an effect on moral judgment. Other than studying the causal effect of physical cleansing on moral judgment, this study also aims to determine the effect of physical cleansing on moral behavior. It was suggested in a study that moral self-image or self-perceived moral purity can influence individual's subsequent moral behavior negatively and positively (Lobel et al., 2015).

According to a study by Conway and Peetz (2012), individuals tend to maintain their moral behavior if they did or recalled moral deeds they did previously in order to maintain their moral self- image and moral identity, this condition is called as moral consistency. However, recalling past moral deeds might result in individuals feeling allowed, or accepted to behave immorally as a compensation to his past moral behavior. Conversely, recalling guilty feelings from the past immoral behaviors would increase a person's likelihood to perform moral deeds subsequently,

which is called ‘moral licensing’, where people perform subsequent compensatory moral behavior according to their past moral behavior. In this case, the process of recalling past moral deeds serve as a mean to recover sense of moral self-regard or increase self-perceived moral purity therefore affecting subsequent moral behavior. According to a study done by Lobel et al. (2015), their result showed that physical cleanliness and whether someone goes through physical cleansing process can affect an individual’s subsequent moral behavior. As a result of physical cleansing, people behave less morally after they physically cleanse themselves and this phenomenon can be explained and supported by the moral licensing theory, as physical cleansing plays a role of moral cleansing, restoring moral self-regard and self-perceived moral purity thus leading people to behave less morally correspondingly.

In combined with findings of past studies, physical cleansing serve as a process which render an individual to the moral ‘high ground’ and self-perceived physical cleanliness correlates with an individual’s moral self-regard and self-perceived moral purity and eventually affecting their subsequent moral judgment and moral behavior.

## **1.2 Problem Statement**

Young adult is a critical developmental stage where higher risk of social issues, risk-taking behaviors and bullying are more prevalent. There are findings suggesting that children and adolescents use morally disengaged justifications in their daily life, and is largely caused by peer influence (Caravita et al., 2012). It was found that moral development in adolescent and young adult is largely influenced by peers, resulting in moral disengagement in daily lives, predicting a higher level of social issues, bullying, and risk-taking behaviors (Caravita, Sijtsema, Rambaran, & Gini, 2014).

Numerous past studies' result had provided significant literature evidences supporting the hypothesis that physical cleansing has effect on moral judgment, moral self-regard, and subsequent moral behavior on multiple aspects (Lee & Schwarz, 2011; Kaspar, Krapp, & König, 2015; Joosten, Dijke, Hiel, & Cremer, 2013; Landy & Goodwin, 2015). However, there are numbers of past studies which failed to replicate the positive findings from the past studies, and elicits a need of reassessment of the theories and evidences from the past (Fayard, Bassi, Bernstein, & Roberts, 2009; Earp et al., 2014; Gámez, Díaz, & Marrero, 2011). Other than that, the contradictory findings between moral consistency and moral licensing theory explains that moral behaviors also elicits a need to provide new literature evidence or insight to the past theories (Mullen & Monin, 2016).

Nevertheless, the 'file drawer' issue was discussed and mentioned in the past studies, a problem which describe a situation where positive findings from experimental studies have a higher tendency to be published. On the other hand, negative or null findings are less likely to be published and this problem was described as harmful towards the reliability and credibility of past studies' findings despite being supported by numerous published studies (Harris, Coburn, Rohrer, & Pashler, 2013). Furthermore, replicating past experimental studies not only reassess the reliability and credibility of the Macbeth theory, it also possess an aim to examine the universality of the Macbeth theory, whether the theory is applicable at different cultural background. In the study by Earp et al. (2014) which failed to replicate the positive findings of the Macbeth theory, attributed the unsuccessful attempt to a different cultural background which have a lower emphasis on personal physical cleanliness. Currently, the amount of study conducted in Malaysia and the South-East Asia region regarding physical cleanliness and moral judgment, and Macbeth theory is scarce and thus evoking a need of replicating experimental studies using a sample from Malaysia to reassess the universality of the theory or applicability of



the theory in Malaysia.

### 1.3 Research Objectives

1. To study the impact of physical cleansing on moral judgment and immoral behavior of the young adults (undergraduate students).
2. To study the role of gender on moral judgment and immoral behavior.

### 1.4 Research Questions

1. Is there a statistically significant difference on moral judgment by physical cleansing between hand-wiping group and non-hand-wiping group?
2. Is there a statistically significant difference on immoral behavior by physical cleansing between hand-wiping group and non-hand-wiping group?
3. Is there a statistically significant difference on moral judgment by gender?
4. Is there a statistically significant difference on immoral behavior by gender?

### 1.5 Research Hypotheses

#### Research Question 1

H<sub>0</sub>: There is no statistically significant difference on moral judgment by physical cleansing.

H<sub>1</sub>: There is a statistically significant difference on moral judgment by physical cleansing.

#### Research Question 2

H<sub>0</sub>: There is no statistically significant difference on immoral behavior by physical cleansing.

H<sub>1</sub>: There is a statistically significant difference on immoral behavior by physical

cleansing.

#### Research Question 3

H<sub>0</sub>: There is no statistically significant difference on moral judgment by gender.

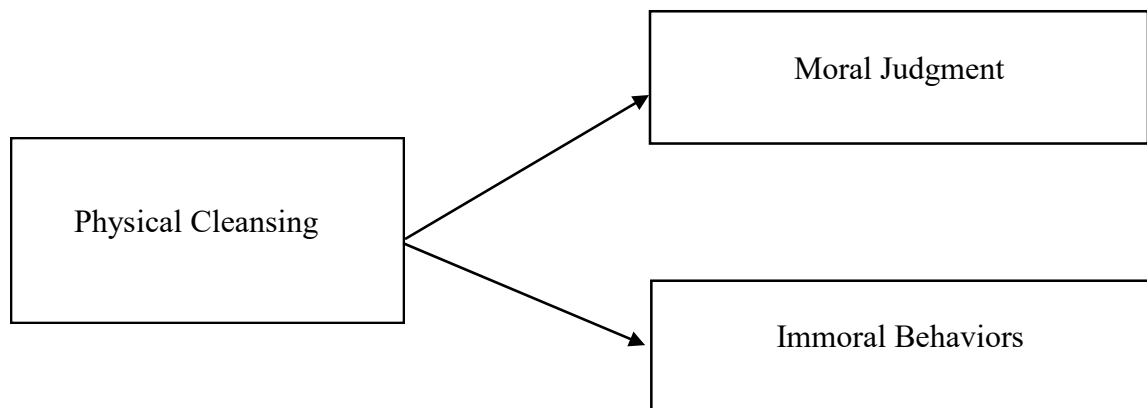
H<sub>1</sub>: There is a statistically significant difference on moral judgment by gender.

#### Research Question 4

H<sub>0</sub>: There is no statistically significant difference on immoral behavior by gender.

H<sub>1</sub>: There is a statistically significant difference on immoral behavior by gender.

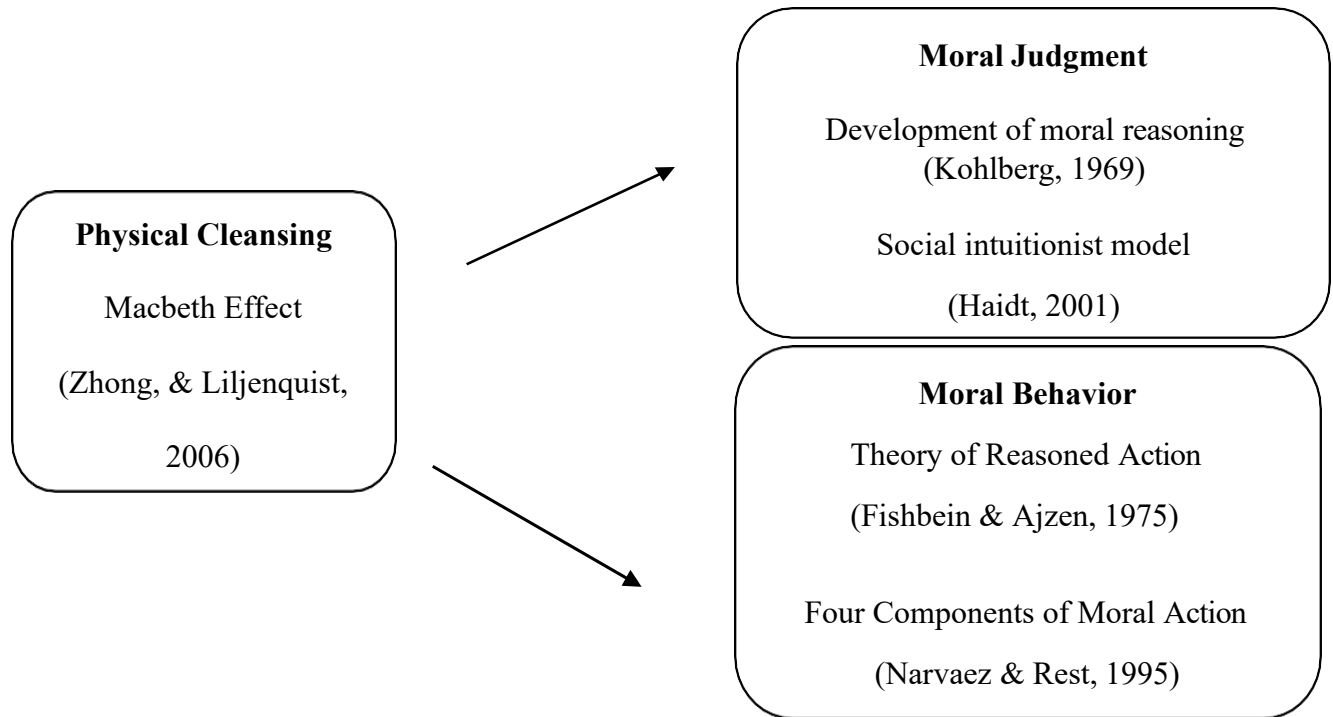
### 1.6 Conceptual Framework



*Figure 1.* The causal effect of physical cleansing towards moral judgment and immoral behavior.

According to the suggested hypothesis of this experimental study, participants who wipe their hand before the experiment were believed to show significant effect on their corresponding moral judgment and immoral behaviors compared to participants who do not go through physical cleansing process. Based on the previous literatures, physical cleansing was found successful in eliciting effects on moral judgment and moral behavior.

### 1.7 Theoretical Framework



*Figure 2.* The effect of physical cleansing on moral judgment and moral behavior

The theoretical framework shown in Figure 2 draw from the theory of the Macbeth effect proposed by Zhong and Liljenquist in 2006. This concept was being applied as a predictor of moral judgment and moral behavior to understand whether the human is more prepared to accept their wrongdoings in the past.

The Macbeth effect can be simply understood as people would conduct physical cleansing behaviors, such as hand washing, hand rubbing and bathing after causing malpractices in the past. The feeling of guilt resulting from immoral acts can be identified as a threat to a person's moral identity. Hence, Zhong and Liljenquist (2006) proposed the concept of physical cleansing lead to some changes in moral judgment and moral behavior, and the result was significant in the field of moral psychology.

The concept of moral judgment was adopted from two theories that are, the development of moral reasoning (1969), and the social intuitionist model (2001). According to Kohlberg, morality develops from the early childhood years. On the other hand, the social intuitionist model proposes that moral judgments are intuitive, and further justified to influence other people.

Next, the concept of moral behavior can be understood by the theory of reasoned action (Fishbein & Ajzen, 1975) and the four components model (Narvaez & Rest, 1995). For the theory of reasoned action, a person's behavior is largely directed by the intention to perform the behavior, and the intention of one's attitudes is largely a product of a person's attitude toward the behavior and subjective norms. On the other hand, the four components of moral action highlight the importance of ethical-moral reasoning in the process of performing moral behavior. According to this theory, a person would first know what action is intended to accomplish and its consequences on others.

### **1.8 Operational Definition**

**Physical cleansing.** Physical cleansing will be represented by hand-wiping behavior carried out by the participants from manipulated group (cleansing group) when they are asked to clean their hand with a provided wet wipe before the experiment.

**Moral judgment.** Moral judgment is the perception towards an incident or situation based on morality and is characterized by participants' morality rating on a fixed set of images showing scenes for morality rating. Greater difference in mean scores from morality rating on each image of moral or immoral scene indicates a more extreme moral judgment by the participant. Every images are evaluated and rated on a 9-point likert scale (1=extremely immoral to 9=extremely moral).

**Immoral behavior.** Immoral behaviors are behaviors that violates social norm or established moral standard but not necessarily illegal. In this study, immoral behaviors will be characterized by participants' cheating behavior while answering the given Remote Associative Test (RAT). The RAT test questionnaire consist of 14 questions which categorized into moderate and extreme based on the difficulty to answer the questions correctly. During the designated experiment, participants will be placed in manipulated condition where an opportunity to cheat will be given, thus participants' cheating behavior will be measured and operationalized by the total score of the eight extremely difficult questions (0 - did not cheat to 8 - cheat on every questions).

### **1.9 Significance of the study**

The findings of this study will benefit to the society by taking account of daily routines such as hand washing plays a significant role in moral judgment and moral behavior. The current study could have implications to the public, especially in the field of criminal psychology, as previous studies had shown that physical washing can make people more prepared to accept their wrongdoings or unethical behaviors. This study will also be beneficial to the educational practitioners and students for the knowledge of moral psychology and criminal psychology investigating the factors that affect moral psychology. By understanding that physical cleansing plays a role in moral judgments and moral behavior, future researchers and future criminal psychologist would understand the consequences of people after committing crimes, either on the run or during court.

In addition, this study is also helpful in minimizing crimes in the future, if the result is significant. The enhancement of the knowledge in criminal psychology would help in

encouraging universities to offer more programs on criminal psychology, which in turn will raise in public awareness about the issue. In the long run, better education regarding the issue, criminality could be reduced.

## Chapter 2

### Literature Review

#### 2.1 Theories

**2.1.1 Physical cleansing.** In the social psychology field, strong evidences supporting the “Macbeth Effect” were first found by Zhong and Lijenquist (2006). The concept stems from one of the scenes in the narrative Shakespeare’s Macbeth, where the character, Lady Macbeth scrubbed her hands to get rid of her sins after murdering people (Earp et al., 2014). This concept explained that the past immoral deeds shows a threat to a person’s self-perceived moral purity, leading them to find ways to cleanse themselves physically. Zhong and Lijenquist (2006) suggested that this effect would reveal through increased mental accessibility of cleansing-related concepts, a stronger urge to use cleansing products. They also suggested that the emotions associated with moral purity are related to the perceived physical cleanliness. They have found that physical cleansing, such as hand washing and bathing affects higher-order thinking and feelings (Anderson, 2010). As seen from the story of Lady Macbeth, it tells that if there is any threat to moral purity, this basic coping mechanism could lead people to seek for cleaning themselves, as a way of dealing with the consequences of unethical behaviors (Gámez, Marrero, & Laguna, 2011). The evidence of the concept comes from (a) Physical cleansing was commonly practiced as a form of religious rituals, for example, baptism in Christian, and (b) neurological evidence where certain brain regions were activated after the effect of physical and moral disgust (Moll et al., 2005).

A recent study showed further support to the Macbeth effect provided by the neurophysiological approaches. An experimental study showed that people who conducted

immoral deeds such as lying in a voice mail resulted in higher tendency of purchasing cleansing products, and writing lies on a paper is followed by a higher desirability to wash their hand (Schaefer, Rotte, Heinze, & Denke, 2015). An activation in sensorimotor cortices was found in the fMRI results, indicating that moral-purity metaphor is specific to the sensorimotor modality involved in earlier immoral behavior. Gollwitzer & Melzer (2012) also published a successful replication of the Zhong and Liljenquist (2006) study, with the results showing that the “Macbeth effect” was mediated by moral distress, consequently an urge to physically clean oneself (Gollwitzer & Melzer, 2012). This research was the first to bring the domains of moral psychology and violent media effects.

The studies mentioned above have successfully demonstrated the Macbeth effect, tapping into the concept of morality. Hence, the significance of the Macbeth effect was shown in the activation of the brain areas and can be observed from the individuals’ need to cleanse themselves after conducting immoral acts.

**2.1.2 Moral judgment.** The research of moral judgment has been intensively done over the past 20 years. To explain the concept of moral judgment, a six-stage model of the development of moral reasoning was developed by Lawrence Kohlberg, building on the preliminary findings of Jean Piaget (Piaget, 1965). According to Kohlberg, ‘role taking’ is a crucial process in the growing of morality, as ‘role-taking’ was found to enhance the individual’s moral reasoning, which in turn, could affect the moral judgment (Kohlberg, 1969). The earliest stage of moral development is pre-conventional morality. At this stage, obedience and punishment were seen in teaching children to understand the goodness or badness and children perceive rules as rigid and absolute. Following the rules is crucial at this point because children observe it as a way to avoid punishment. Moreover, reciprocity is also possible at this point, not only it serves to fulfill one’s interests. The second



stage is conventional morality. Children in this stage strive in maintaining the expectations of others. They follow social rules, with great emphasis on social conformity. At the stage, children begin to perceive society as a whole before making any judgment. The next stage is the post-conventional morality where moral values and principles were define separately from the authority of groups. People make their decision of conscience according to their chosen ethical principles. The theory of moral development by Kohlberg had reflected significant influences in the field of moral psychology. However, the definition of morality was not made implicit (Turiel, 2018). This theory focused on the preferred mechanisms of learning of internalization of environmentally determined components, which is more on the moral judgment is being “learned” from the environment.

Recent literature stipulated that Kohlberg’s theory had a significant impact on the moral reasoning development of business students. This study stated that students’ participation in intentional exercises to arouse reflection on the moral aspects of their learning would enhance their ability in reasoning through ethical consideration with greater complexity (Schmidt, McAdams, & Foster, 2009). This facilitate business student to possess with higher order thinking and higher complex moral reasoning skills before entering the business field. According to Kohlberg, moral judgments are the outcomes of a conscious decision based on moral rules. Another study also built on the concept of Kohlberg’s theory, showing that moral decision making is strongly affected by social context. Moral judgments were strongly affected by social consensus and hence results in the decision to behave appropriately in the social context (Kundu & Cummins, 2013).

In the past decade, moral psychologist challenged the idea of reasoning affects moral judgments and suggested that automaticity is the primary cause of moral judgment. Stemmed on the concept of automaticity, a comprehensive model named the social intuitionist model was

established with supporting findings from field of neuroscience and evolutionary psychology (Haidt, 2001). This model declared that moral judgment is an instant feeling of moral approval or disapproval which arises when an incident was observed or heard from others. To a better understanding of the concept, moral judgment are being explained as intuitions grounded on affection and emotion because they arise suddenly and effortlessly in our consciousness. These intuitions differ from cultures as human are being shaped by natural selection and cultural forces (Greene & Haidt, 2002). Therefore, people from different culture have different opinions towards loyalty, purity, and suffering. However, the model was being criticized for neglecting the role of cognitive reasoning on moral judgment.

Other findings also showed consistent support for the social intuitionist model. Drawing on the social intuitionist model, one study provided evidence that emotions are responsible in the moral-judgment process (Feinberg, Willer, Antonenko, & John, 2012). The result showed that although people are driven by moral intuitions, people can choose to overrule such intuitions through reconsideration processes. The reconsideration processes play a role in diminishing moral experience cause by moral intuitions, would result in more deliberative moral reasoning. Another study aimed to study social value orientations are displayed automatically in behavior. The results claimed that the automatic expression of social value orientation is mediated by individual differences in the perceptions of interpersonal closeness. Hence, this study suggested that the reasoning process could affect automaticity in decision-moral reasoning (Cornelissen, Bashshur, Rode, & Le Menestrel, 2013).

To summarize, both theories have proved shreds of evidence on the moral judgments in distinctive areas of study. Moral judgment was found to be influenced by the social context, and at the same time reasoning also plays a role in moderating individual's moral judgment.

**2.1.2. Moral behavior.** The theory of reasoned action by Fishbein & Ajzen (1975) explained that behavior is determined by the behavioral intention to react in the desired ways. The concept of the theory stands on a person's intention is a function of two fundamental determinants, one personal belief in nature and the other reflecting social relationships. The first determinants of the theory is a person's attitude on target behavior where consequences of target behavior was evaluated based on his personal belief. Next, the second determinant of moral behavior is the subjective norms which influence a person's perception on appropriate or inappropriate behavior. Subjective norms are based on a person's belief system regarding his or her views on life and the way of behaving. According to this theory, a person's behavioral intention is a function of his attitude towards his behavior and subjective norms, which is, a person's attitude towards behavior is determined by his behavioral beliefs (Abduh, Duasa, & Omar, 2011). For instance, people who believe in performing a given behavior will most likely show positive outcomes will hold positive attitudes towards performing the behavior (Amin, Lada, & Tanakinjal, 2009).

The theory of reasoned action holds a rational view of human nature: People will consider the implications of their actions before deciding to perform a given behavior. A study which aimed at explaining internet banking behavior also applied this theory and found that there are unique beliefs for each situation, people would act in a different way (Yousafzai, Foxall, & Pallister, 2012). This study was useful in providing insights to provide confidence in using internet banking behavior. Another study carried out in Malaysia by Ramayah, Rouibah, Gopi, & Rangel (2009) found that there is a direct significant positive association between attitudes towards behavior and subjective norms and behavioral intention to use Internet stock trading. This direct relationship is similar to the concept proposed by Fishbein and Ajzen (1975). People's actions were strongly affected by the subjective norms system within an individual, which is the way of behaving based

on his belief system.

On the other hand, the four-component model suggests that there is a minimum of four processes in determining moral behavior. The first component is the moral sensitivity includes the receptivity of the sensory-perceptual system to social situations and the interpretation of those situations. It is the skills to interpret cause-effect relationships in social situations, where the decisions might consider their actions which could affect the welfare of others (Moore & Chang, 2006). Next, it also involves moral judgment, where a person decides on the possible actions that are morally accepted. A person might consider the choices of behavior and determine what he or she should do in a social situation. Thirdly, moral motivation involves a person who gives priority to the moral value over other personal interests and intends to fulfill the tasks needed to be a “moral self” (Narvaez & Rest, 1995). Lastly, implementation is a crucial component that combines all the social and psychological skills to carry out the chosen moral action also known as the ego strength.

A recent study successfully showed that the four-component model of moral behavior was significant. A study found that moral sensitivity was negatively related to pro-bully behavior, which results in a moral disengagement in the study (Thornberg & Jungert, 2013). The study revealed that children or adolescent who have lower moral sensitivity are less resistant to moral disengagement, where they are less likely to engage in bullying behaviors. Working on the concept of this model, another study also suggested that people would exhibit moral courage behavior when people behave ethically after running the four processes of the four-component model (Hannah, Avolio, & Walumbwa, 2011). As a result of moral courage, the study demonstrated positive social acts that further produce the well-being and integrity of others in the organization.

The two theories regarding moral behaviors were found significantly proved by other studies. Theory of reasoned action believes that before performing any action, a human would

consider the effects of their actions on others. Whereas the theory of four components of moral action, moral sensitivity is responsible in the decision-making process before people conducting moral behaviors.

## **2.2 Past Studies**

**2.2.1 Physical cleansing.** Mental contamination can be understood as a phenomenon which involves a sense of impurity without physical pollutant (Khan & Grisham, 2018). Conversely, contact contamination can be directly identified as the source of dirtiness which can be easily observed. Mental contamination includes feelings of dirtiness which are not overt and thus are more difficult to assess (Coughtrey, Lee, Shafran, & Rachman, 2012).

In the past, the aim of physical cleansing was to merely protect us against infections and hence promoting health. However, there are more recent studies showed that physical cleansing could make some changes on the psychological aspects of human beings. Due to the emerging advancement of research methods in psychology in the past decade, Zhong and Lijenquist (2006) had explored the study of “Macbeth effect”, from the story of Lady Macbeth. A drama from Shakespeare stated that after Lady Macbeth provoked her husband to murder the King of Scotland, she repeatedly wanted to wash her hands badly (Kaspar, Krapp, & König, 2015). Due to the concept of physical cleansing is widely used in different religious ceremonies, Zhong and Lijenquist (2006) investigated (i) whether a threat to one’s moral purity would trigger an urge for physical cleansing, (ii) and whether physical cleansing would help people to cope with the threats to morality. They asked the participants to recall previous immoral acts as detailed as possible and to describe the emotions associated with immoral acts. From the study, the results showed that participants who recalled an immoral behavior from the past generated more cleansing related words, and also more likely to take a wet tissue than those who recalled moral acts in the past.

Their study was among the first to document an association between physical cleanliness and ethical cleanliness. A threat to moral self-image triggers an urge for physical cleansing, which may relieve emotions such as guilt, and reduce compensatory behaviors (Zhong and Lijenquist, 2006).

A study by Khan and Grisham (2018) revealed partial support for the Macbeth effect with Obsessive-Compulsive Disorder (OCD) and normal samples. The research by Khan and Grisham (2018) has determined (i) whether cleansing-related concept is affected by immoral feelings and (ii) Whether cleansing would decrease feelings of immorality and (iii) whether a reduction in volunteerism is affected by a decrease in immoral emotions. The students who were found with high OCD contamination were randomly assigned to one of the three conditions: immoral, anxious or neutral, and a word fragment task was given to assess the students' mental accessibility of cleansing-related concepts. After that, half of the participants performed a task which is unrelated to the study (control) while the other half wipe their hands to determine whether cleansing would cause an effect on moral emotions and volunteerism. From the study, the results claimed that participants in the immorality condition were more distressed, and hence used more morally cleansing words. Furthermore, students in the immorality condition who cleanse their hands were less likely to take part in volunteerism than those who did not cleanse. In short, the study only revealed partial support of the evidence of the Macbeth effect on OCD patients.

Another study was done by Reuven, Liverman, and Dar (2013) attempted to investigate the Macbeth effect and the differences between participants with OCD and matched controls. The study borrowed the procedure carried by Zhong and Lijenquist (2006), by asking the participants to report unethical acts they had done previously. After that, half of them was being asked to cleanse their hands, whereas the other half did not. The act of volunteerism was determined by asking participants whether they would help their senior by taking part in a study. From the study,

the research findings suggested that the Macbeth effect influence both participants with and without OCD with a magnification of the effect of physical cleansing found in the participants with OCD contamination. The results successfully proved an effect of washing in OCD, to alleviate negative emotions associated with guilt or immorality.

On the other hand, there are also two studies by Cogle, Goetz, Dillon (2012) failed to prove a significant relationship between the Macbeth effect and OCD symptoms. The studies were carried out to determine (i) whether there is an association between guilt and compulsive washing, and (ii) whether guilt increases washing behaviors. Following guilt induction, participants were randomly allocated to one of the three conditions: hand-cleaning, straightening of clutter, or a neutral task. The study indicated that there was no difference between the three conditions in determining the association between guilt and hand washing. For study 2, the results suggested that physical cleansing does not lead to a significant reduction in guilt, but guilt may prolong hand washing behavior.

As reviewing previous literature, controversial findings regarding the Macbeth effect were found on different samples. The contradictory findings found between these studies suggested that it may be due to methodological limitations. However, these studies did not verify that whether the immoral feelings would cause a changes to the preference for cleansing-related words or the differing rates of conducting pro-social acts (Khan & Grisham, 2018).

Due to the insufficient results proving a relationship between Macbeth effect and immorality, this research aims to verify whether the Macbeth effect can be affected by feelings of immorality.

**2.2.2. Moral judgment.** Moral judgment simply refers to judgments based on moral content. A previous explanation for the moral judgment was mostly based on cognitive processes.

In recent years, the development of moral judgments seems to stem on the foundation of emotions and intuition, where people developed instant perceptions towards events and people in a social context. Sensory information such as emotions seems to regulate the moral evaluation of an individual.

Research by Eskine, Kacirik, and Prinz (2011) was conducted to identify whether there is an association between the disgust feelings and morality. The study participants were randomly assigned to one of the following beverages conditions: sweet, bitter, or control. After that, participants were allocated to complete a task for measuring moral-judgment. The results showed that taste plays a role in altering moral judgments, particularly a bad taste that triggers a feeling of disgust. It was found that in the bitter taste condition, there were harsher judgments given by the participants as compared to the control condition. From the study, sensory and perceptual information plays an important role in moral judgment, and intuitions and feelings play fundamental roles in moral processing (Eskine, Kacirik, & Prinz, 2011).

Another research by Chapman and Anderson (2014) was carried out to examine whether individual differences would show a different result in the tendency to experience disgust feelings toward physical stimuli, and reactions to cleanse moral transgressions. To measure the physical disgust status, participants from the study completed the Disgust Scale. Participants were instructed to read scenarios and asked to rate the action described as wrongness. From the results, participants with high physical disgust trait showed more extreme judgments toward moral transgressions, and they were more likely to show moral licensing in the social norms.

Both of the studies showed a connection between sensory-perceptual information alters moral judgments. The two studies suggested moral judgments are affected by intuitions and emotional reactions and not as influenced by rational, conscious thought.



**2.2.3 Moral and immoral behavior.** Past research proved that people behave dishonestly, but at the same time manage to perceive themselves as a moral individual (Ding et al., 2016; Lobel et al., 2015). According to the theoretical model of self-maintenance, people seek to be a moral individual, and at the same time would like to profit from dishonesty. To get rid of the tension and maintain the ideal moral self-image, some justification mechanisms took place before people violate ethical rules, such as acting pro-socially, and moral licensing (Shalvi, Barkan, Francesca, & Ayal, 2015). These justifications took place after people have experienced feelings of immorality, serving mechanisms to minimize the experienced dissonance, purify feelings of guilt, and purify oneself.

One study by Cascio & Plant (2015) examined the effect of how planning for future moral behavior affects current morality. Such moral licensing served as a justification for individuals who were involved in moral activities, feelings as they are morally enough to conduct immoral acts (Lobel et al., 2015). Across four studies, Cascio & Plant (2015) explored whether engaging in moral behavior would direct people to make a biased decision. Participants who planned for performing moral behaviors in the future were found to be more racially biased than control participants. From the studies, the results showed that anticipating moral acts, no matter in the past or future moral behavior would license people to behave immorally.

A recent study had shown an association between immoral acts and moral acts (Ding et al., 2016). The study aimed to find out the role of guilt and moral identity in the relation between previous immoral behaviors and subsequent pro-social behaviors. To determine the moral cleansing effect, participants were randomly assigned to different recalling tasks: recalling their previously immoral acts in the past and recalling their neutral acts in the past. At the end of the recall task, feelings of guilt and the tendency of volunteering behavior was being measured.

According to Ding et al. (2016), previous immorality evokes feelings of guilt, which in turn triggers moral compensatory behavior to alleviate this threatened psychological distress. Defining moral cleansing as the process to restore one's threatened moral self-image after conducting sinful behaviors (Sachdeva, Iliw, & Medin, 2009), individuals are more likely to show pro-social behaviors to restore their ideal self-concept.

Conversely, one previous study showed an association between moral behavior and physical disgust. From the study, the wrongness of an action is determined by the feelings associated on the action. Research by Liljenquist, Zhong, and Galinsky (2010) aimed to determine whether clean scent could influence physical cleanliness and promote moral behavior. In experiment 1, participants were assigned to be a receiver and they have the rights the make a decision whether to return money to an unknown investor. Experiment 2 was similar with the experiment 1, with a different objective to determine whether clean smell in a room would motivate moral behavior: charity. From the study, the results proved that in a clean-scented room, participants were more likely to engage in pro-social and charity events. Moreover, people in a clean-scented room returned more money than those in the control room. Furthermore, participants also showed more interest in volunteerism and were more willing to donate than participants in the control condition (Liljenquist, Zhong, & Galinsky, 2010).

**2.2.4 Physical cleansing and moral judgment.** Physical cleansing, such as hand washing not only brings physiological advantages to us, it could also responsible in altering moral judgment. According to the concept of the Macbeth effect, people are more likely to cleanse themselves after conducting immoral acts.

A recent study done by Zhong, Strejcek, & Sivanathan, (2010) aimed to examine if physical cleanliness licenses severe moral judgment. Upon arrival, participants were being assigned to

conditions: hand wiping or neutral. Given a pictures of societal issues, the participants were asked to rate the pictures in terms of the morality. Findings from the experiment showed that participants who had undergone hand washing condition rated critical issues in a social context, such as smoking and watching pornography to be more sinful. According to the study, participants from the study also rated higher moral self-image after cleansing their hands. The results from the studies suggested that attribution of physical purity could be attributed to the Macbeth effect, with higher moral self-image, and hence licensing harsher moral judgments.

Another study done by Kaspar, Krapp, & König (2015) proved that hand washing had elicited a clean slate effect in the form of eliminating the tendency for harsher moral judgments over time. The study has determined (i) how handwashing affects moral judgments, (ii) whether physical cleansing would cause a difference in moral judgments, and (iii) whether emotional arousal was affected by hand washing. This study used a pre-post control group design, whereby the participants were being asked to observe 72 complex images with moral scenes and immoral scenes. The current mood status was being rated to assess the impact of mood on the viewing of photos. After that, participants were asked to perform a sensorimotor coordination task to maintain concentration for the next following eye-tracking task. The participants were then assigned to either washing group or control group to assess the physiological effect of hand washing. From the study, the results claimed that there was is clean slate effect shown after hand washing, with decreased intensity of extreme moral judgments over time. The study also found that when there was no hand washing took place in the meantime, harsher moral judgments were found for moral and immoral scenes. Furthermore, the pupil diameter of the participants was also found smaller after hand washing, suggesting a physiological response was found in the hand washing.

Despite the successful replication of the study of Zhong and Liljenquist (2006), there are

also failed replications found. The causes of failed replication were found to be due to measurement and sampling, variation in subject populations, the discrepancy in operationalization, and unidentified moderators (Huang, 2014). Hence, this research aims to clarify the debate between physical cleansing and moral judgment.

**2.2.5 Physical cleansing and moral behavior.** Studies have found that mental contamination includes elements such as thoughts, images, emotions or memories are closely connected to the concept of immorality (Khan & Grisham, 2018). In this explanation, when people encounter immoral or unethical situations in their life, such as harassment or aggressiveness, their mental contamination would likely to be provoked.

Recent research by Lobel et al. (2015) was conducted to discover the relationship between physical cleansing and moral behavior in daily life. In the study, thirty participants who just finished their workout were recruited, with half of them had a shower and the other half of them were yet to shower. The participants were given a questionnaire and they were being told to test on their “general knowledge”. The questionnaire consisted of 13 questions, with 9 extremely difficult questions and 4 extremely easy questions defined by the experimenter. The cheating act of participants was measured by enabling participants to self-mark their results after the test. As predicted, participants who took shower after working out cheated more on the test as compared to those who did not shower (Lobel et al., 2015). The result showed that cleansing influenced cheating behavior, such as cheating.

Another research done by Harkrider et al. (2013) examined the effects of motivation and consequences of actions on lying behavior and moral cleansing. Participants were asked to complete the Remote Associate Test (RAT) as a way to measure the cheating behavior. After the completion of the first eight items of the RAT, another six difficult items were included, followed

by another eight extremely difficult items. To measure the cheating behavior, the answer for the difficult questions was marked softly by a pencil on the test paper, as if the previous participant accidentally left his answer on the test paper. Hence, the cheating behavior was determined by the matching between the number of correct answers between their test and the answers marked on the test paper. Further, to assess whether cleansing causes an effect on moral cleansing, participants were instructed to read four moral dilemmas stories, and rate on the likelihood on how they would behave in those stories. From the study, the results showed that motivation and consequences related threatens unethical thought, resulted in a greater intensity of moral cleansing when large motivation to cheat were shown. Hence, it was found that physical cleansing would cause an alteration in an individual's immoral acts. Previous studies suggested that after recalling immoral acts in the part, people tend to cleanse their hands frequent than others. Furthermore, people who washed their hands after such contemplation showed lesser attempts to engage in other pro-social behaviors, such as volunteering.

**2.2.6 Gender difference in moral judgment and moral behavior.** In our society, gender role stereotypes still play a significant role in shaping people's perception and expectation on male and female. From the emotional aspect, female are always being perceived and believed to be more emotionally-sensitive, affective, and show greater empathy in many situation than to the male (Christov-Moore et al., 2014). Studies and researches on gender differences in empathy had been conducted in different fashions, such as different instruments on measuring empathy level, specifying target of empathy, assessing moderator such as each gender's differences in experience during developmental stages, in different settings or different conditions, the varied studies had yielded varied results (Baez et al., 2017). Studies which employed self-report instruments to measure empathy level are more likely to acquire a result of female scoring higher than male when it comes to empathy, and might inferred that

gender roles norm played a contributing role as female and male were going to respond more accordingly to the expectation placed by gender roles norm (Nanda, 2013).

On behalf of that, various gender differences on emotional, personality and especially empathy imply that gender difference on moral aspect such as moral judgment and moral behavior in this study are very likely to exist. Neurological evidence supporting the gender differences on empathy was found by Michalska, Kinzler, and Decety (2013), suggesting that female illustrates higher level of empathy than male and this gender difference is stable and consistent throughout the developmental stages. According to Decety and Cowell (2014), lacking of empathy or concern for others welfare will influence an individual's moral judgment and moral behavior. It can be seen that there is significant gender differences in moral judgment and moral behavior found from the past literatures.

## Chapter 3

### Methodology

#### 3.1 Research Design

The current research was conducted in an experimental design with two tasks in determining whether physical cleansing alters moral judgment and triggers immoral behavior respectively. A between-subjects research design had been adopted to assess the difference between hand wiping and non-hand wiping on moral judgment and immoral behavior. In this study, independent and dependent variables were operationalized and best statistical methods were adopted to answer the proposed research questions.

**Participants.** Forty subjects (23 females, 17 males) who were unknown of the true objectives of the study were randomly assigned to either task A (Moral Judgment) or task B (Immoral Behavior), with different conditions (Control or Hand-wiping) before proceeding to the next task. Half of the participants were being assigned to task A first, then task B; where the other half of them being assigned to task B first, then A. The order of the tasks were counterbalanced to balance the practice effects across the first task of the experiment, as partial counterbalancing was found helpful in maximizing control over sequential effects (Zeekenberg & Pecher, 2014).

#### 3.2 Sampling Techniques

In the current research, purposive sampling method was applied to recruit UTAR undergraduates from different faculty due to the two reasons: helpful for pilot studies because participants can be recruited in UTAR, Kampar campus, and data collection can be facilitated in short duration of time. This study aims to recruit UTAR students as the sample, because university students have to make

moral judgments and react in morally acceptable ways in their daily life. Hence, UTAR undergraduates were being asked to join the study voluntarily, and a gift of appreciation had been provided to every participant after the participation of the study.

In the study, 57.5% of participants were female, with 42.5 % of them were male. The study was being carried out at the individual counselling rooms located at UTAR Kampar, P002A. There were different conditions allocated for each individual room, with individual counselling room 1 (Control group), while individual counselling room 2 (Hand-wiping group). The participants were being randomly assigned to either of the counselling rooms, depending on the availability.

**Research Location.** The current experimental study focused on UTAR undergraduates at Kampar, Perak due to the feasibility of recruiting participants. It was carried out at the UTAR individual counselling rooms, with every participants being assigned to different group condition.

### **3.3 Research Procedure**

In this current experimental study, there were two tasks given to the participants which measure moral judgment and immoral behavior, two main dependent variables of this study. Participants were randomly assigned to either manipulated condition (hand-wiping group) or control condition (non-hand-wiping group) upon their arrival to the counseling rooms. After that, each of them was randomly assigned to enter one of the rooms which were designated for their respective experimental condition. Short and clear briefing about the experiment and tasks to be performed was given by the researcher before starting the experiment, while the true nature of the study remained unrevealed as it might affect the reliability of experimental outcome. Consents were then obtained from the participants when written informed consent forms were given to them after the experimental briefing.



In order to assess the possible procedural or sequence effect between two experimental tasks, counterbalancing method was adopted in this experimental study. For both of the group conditions, one of the groups had performed moral-rating task first while the other group had performed RAT test first instead. This would help in improving the internal validity of this current experimental study.

Therefore, 40 participants were equally divided into 2 main groups, the control and the manipulated group. Each of the group were then further divided into two sub-groups, which were normal group (moral-rating task first) and counterbalancing group (RAT task first). For control-normal group participants, they were instructed to begin moral-rating task right after briefing and obtaining consent from them while control-counterbalancing group participant started off with RAT task first. For manipulated normal and counterbalancing group participants, they were instructed and required to wipe their hand thoroughly for hygiene purposes before carrying out the two experimental tasks with wet-wipe provided. As soon as the participants had completed their first task of their respective group, they were instructed to proceed to their next task immediately.

After completing the two experimental tasks, debriefing about the true purpose of the experiment and some basic theories were given to the participants. They were being reminded to keep all the information related to this experiment to themselves without revealing to their friends. Eventually, all of the participants were given a ball pen as a token of appreciation. After dismissing the participants, the experiments were continued with a new pair of participants.

### **3.4 Material and Apparatus**

**Physical cleansing.** Thorough and clean hand wiping action with wet wipe was instructed at the beginning of each task of the experiment under manipulated condition. Only one brand of wet wipe had been used in this experiment.

**Moral Judgment.** Moral judgment was characterized by participants' morality rating on a fixed set of images showing moral and immoral scenes for morality rating (Kaspar, Krapp, & König, 2015). Greater difference in mean scores from morality rating on each image of moral or immoral scene indicates a more extreme moral judgment by the participant. Every image was evaluated and rated on a 9-point likert scale (1=extremely immoral to 9=extremely moral). The lower morality ratings indicates harsher immoral judgment, whereby the higher morality ratings indicated more extreme moral judgment. The task was completed by participants ratings' on questionnaire created with Qualtrics using Microsoft Surface Pro from the psychology lab.

In the questionnaire, images are shown on a fashion that respondent need to rate the previous image from 1 to 9 (very immoral to very moral) before proceeding to next image. Every images were in 1080p high definition resolution and a description of the situation in each image is given to avoid different perception on the situation by different participants.

**Immoral Behavior.** Adopted from the concept of the measurement for immoral behavior from Harkrider et al. (2013), immoral behavior was characterized by participants' cheating behavior while answering the given Remote Associative Test (RAT). The RAT test questionnaire in the current study consists of 22 questions, which categorized into easy, moderate and extremely difficult based on their difficulty to answer the questions correctly.

During the designated experiment, participants were given opportunity to cheat, as they were repeatedly told that due to the lack of question papers, they have to reuse the question papers which were previously used by other participants. Hence, there were some answer marks left on the question papers, which were disguised as written answers by previous participants and could not be erased thoroughly. The answers of the last eight extreme difficult questions were slightly modified to prevent participants from scoring them by chance or by mental skills.

Thus, participants' cheating behavior was being measured and operationalized by the total score of the eight extremely difficult questions (0- did not cheat to 8-cheated on every question).

### **3.5 Pilot Study**

A pilot study was carried out before the real experimental study to ensure smooth experiment flow. Four participants was recruited through purposive sampling method. The pilot study was initiated for several main purposes. Firstly, to ensure every participants of real study could experience consistent experimental procedures and situations in order to eliminate possible external factor affecting the accuracy of the study outcome. Besides, pilot study was conducted to testify and assess validity of instruments used for physical cleansing, moral judgment and immoral behavior in this study.

During the pilot study, all participants were thinking in a way that we predicted, as they perceived that the word marks left on the question paper for RAT test were answers left by previous participants or by the researchers. This indicated that the experimental procedure had guided the participants to believe that they were given an opportunity to cheat during the completing of RAT task. However, a mistake was found as some of the word marks were too unclear to be recognized which might inhibiting participants from cheating.

Apart from that, there was a technical problem occurred when 72-images morality rating tasks were given to one of the participant where internet connection was unstable and the progress was affected. This problem happened during pilot study was prevented as we brought stable internet hotspot to the experiment venue.

After assessing the possible issues that would affect the actual study, problems encountered in the pilot study were resolved and prevented in order to ensure the results were not affected by the external factors. Hence, the running of the pilot study had provided confidence and support to carry out the designated experimental procedures.

### **3.6 Data Analysis**

The statistical analysis of the results for moral judgment, cheating behavior, and gender was conducted using the IBM SPSS Statistics 23.0 software. Firstly, an independent t-test was conducted to assess the difference in group condition and moral judgment. The mean scores for both moral images and immoral images were calculated before conducting the independent sample t-test. Next, another independent t-test was carried out to assess the difference in group conditions and cheating behavior. The cheating behaviors were determined by checking the correct RAT responses found on the extremely difficult questions on the answer sheets. Furthermore, another two independent t-tests were conducted to determine whether there is a gender difference in moral judgment and cheating behavior. This was done by comparing genders to the mean scores of moral images, immoral images, and the cheating responses from the RAT.

## Chapter 4

### Results

#### 4.1 Descriptive Statistic

**Demographic information of research participants.** The demographic information of the respondents was portrayed in the Table 4.1. The research sample consists of 40 participants with age ranged from 18 to 25 ( $M=20.2$ ,  $SD=1.63$ ). For gender, female respondents slightly surpass the male respondents, as there were 23 females (57.5%) and 17 males (42.5%) participated in the current research. Besides, due to the demographic information of UTAR, majority of the respondents were Chinese (97.5%), followed by Malay (2.5%). Additionally, there were students from FAS (35.0%), FBF (25.0%), FICT (22.5%), FEGT (7.5%), FOS (5.0%), ICS (2.5%), and Foundation (2.5%).

Table 4.1  
*Demographic Information of Participants (N = 13)*

	<i>n</i>	<i>%</i>	<i>M</i>	<i>SD</i>
Sex				
Male	17	42.5		
Female	23	57.5		
Ethnicity				
Chinese	39	97.5		
Malay	1	2.5		
Faculty				
FAS	14	35.0		
FBF	10	25.0		
FICT	9	22.5		
FEGT	3	7.5		
FOS	2	5.0		
ICS	1	2.5		
FOUNDATION	1	2.5		

*Note.* *n* = number of participants; *%* = percentage; *M* = mean; *SD* = standard deviation; Min = minimum value; Max = maximum value. The sample of 40 participants were from UTAR, Kampar campus.

## 4.2 Inferential Statistics

***H1: There is a statistically significant difference in moral judgment between control group and hand wiping group.***

Table 4.2

*Independent sample t-test between group condition and moral judgment (Immoral and Moral Images)*

Moral Judgment	Condition	<i>n</i>	Mean	SD	<i>t</i>	df	Sig
Immoral	Control	20	2.69	.56	1.35	38.00	.19
	Hand wiping	20	2.49	.41			
Moral	Control	20	7.20	.58	.46	38.00	.65
	Hand wiping	20	7.12	.56			

An independent sample t-test was conducted to determine the differences in group conditions (hand wiping versus control) towards moral judgment. Results indicated that participants rated lower on morality ratings for immoral images than to moral images for both group conditions, with hand wiping conditions rated slightly lower for immoral judgment than to the control condition, indicating slightly harsher moral judgment for the hand wiping group. For moral images, participants from the hand wiping group rated lower on the morality score than to the control group, indicating that participants from the control group rated moral images to be more moral than to the hand wiping group.

The assumption of homogeneity of variances was tested and satisfied through the Levene's *F* test. For immoral images, there was a non-significant difference found in the morality ratings for control ( $M = 2.49$ ,  $SD = .41$ ) and hand wiping ( $M = 2.69$ ,  $SD = .56$ ) conditions;  $t(38) = 1.35$ ,  $p = .0.19$ . For moral images, there was also a non-significant difference in the morality ratings for control ( $M = 7.20$ ,  $SD = .58$ ) and hand wiping ( $M = 7.12$ ,  $SD = .56$ ) conditions;  $t(38) = 0.46$ ,  $p = 0.65$ . Thus, the null hypothesis was supported by evidence.

***H1:* There is a statistically significant difference in immoral behavior between control group and hand wiping group.**

Table 4.3

*Independent sample t-test between conditions and cheating behavior*

Condition	<i>n</i>	Mean	SD	<i>t</i>	<i>df</i>	Sig
Control	20	1.40	2.21	-.73	38.00	0.47
Hand wiping	20	1.95	2.52			

An *independent sample t-test* was carried out to determine the differences between control (non-hand wiping) and manipulated (hand wiping) condition in cheating behavior. The assumption of homogeneity of variances was tested and satisfied through the Levene's *F* test.

The result shown signifies that 20 participants from manipulated condition showed a slightly greater cheating behavior than participants from the control condition. However, the difference is not statistically significant between manipulated condition (M=1.95, SD=2.52) and control condition (M=1.4, SD=2.21);  $t(38) = 0.73, p = 0.63$ . Unexpectedly, there is no significant difference found between both groups in the likelihood of conducting immoral (cheating) behavior. Therefore, the null hypothesis was accepted.

***H1:* There is a statistically significant difference between gender and moral judgment.**

Table 4.4

*Independent sample t-test between gender differences and moral judgment (Immoral and Moral Images)*

Group	Moral Judgment	Gender	<i>n</i>	Mean	SD	<i>t</i>	<i>d</i> <i>f</i>	Sig
Control	Immoral	Male	9	2.65	.60	-.28	18.00	.78
		Female	11	2.72	.54			
	Moral	Male	9	7.33	.36	.90	18.00	.38

		Female	11	7.10	.71			
Hand wiping	Immoral	Male	8	2.37	.15	-1.03	18.00	.32
		Female	12	2.56	.51			
	Moral	Male	8	7.26	.36	.92	18.00	.37
		Female	12	7.02	.67			

To determine whether there is a gender differences in moral judgment, an *independent sample t-test* was conducted. As the results for physical cleansing was not significant, hence the focus would only be placed on the control group. For immoral judgment, male (M=2.65, SD=.60) was found giving slightly more extreme judgment as compared to female (M=2.72, SD=.54);  $t(18) = -.28, p=.78$ . For moral judgment, male (M=7.33, SD=.36) was also found in giving slightly higher morality scores as compared to female (M=7.10, SD=.71);  $t(18) = .90, p=.38$ . Both of the results indicating that males were more likely to give harsher moral judgment as compared to females. However, there was no significant difference found between male and female for both immoral and moral judgment.

To conclude, the results for gender suggested that genders do not cause any strong effect on moral judgment. Hence, the null hypothesis was supported.

**H1: There is a significant difference gender and immoral (cheating) behavior.**

Table 4.5

*Independent sample t-test between gender differences and cheating behavior*

Group	Gender	<i>n</i>	Mean	SD	<i>t</i>	<i>df</i>	Sig
Control	Male	9	0.56	1.13	-1.73	14	0.11
	Female	11	2.09	2.66			

An *independent sample t-test* was carried out to study the gender difference in cheating behavior.

The assumption of homogeneity of variances was tested and not satisfied through the Levene's F test.



According to the Table 4.5, there were 11 females showed slightly greater cheating behavior than to the male participants. However, the difference is not statistically significant between female participants ( $M=2.09$ ,  $SD=2.66$ ) and male participants ( $M=0.56$ ,  $SD=1.13$ );  $t(14) = -1.73$ ,  $p=0.11$ . Therefore, there is no statistically significant gender difference in conducting immoral behavior. Thus, the null hypothesis was accepted.

## Chapter 5: Discussion

Physical cleansing action was found bringing significant effects in altering moral judgments. The current study aims to determine the impact of physical cleansing on moral judgment and immoral behavior of the young adults, and the role of gender on moral judgment and immoral behavior. Four independent sample t-tests were carried out separately in order to determine the effect of physical cleansing on moral judgment and immoral behavior.

### Physical Cleansing and Moral Judgment

The first hypothesis of the research stated that there is a significant difference between physical cleansing and moral judgment. However, the current study revealed that there were no significant effect for physical cleansing on moral judgment. One literature suggested physical cleansing licenses more extreme moral judgment (Zhong, Strejcek, & Sivanathan, 2010). Contradictory, another research from the past suggested that hand washing had elicited a clean slate effect in eliminating harsher moral judgment (Kaspar, Krapp, & König, 2015). As the current research did not showed a significant effect between physical cleansing and moral judgment, the null hypothesis is accepted. The results of the current study was found to be tally with a previous research (Huang, 2014). According to Huang (2014), participants' response effort plays a role for physical cleanliness on triggering moral judgment. Participants' lower response effort in completing the experiments, whether it is due to individual differences or the experimental procedures, may results in less extreme moral judgments across both conditions. Based on the failed replications of the study by Zhong & Liljenquist (2006), researchers may have overlooked the importance of participants' responses effort as a moderator of the study. In this current research, the incentives provided as a gift of appreciation may not be as attractive as other study

incentives. For instance, coursework marks would be more likely in triggering participants' higher motivation in completing the tasks.

### **Physical Cleansing and Immoral Behavior**

According to the result shown by the independent t-test carried out for second research question regarding relationship between physical cleansing and immoral behavior, significance level for the difference between physical cleansing and immoral behavior was not attained. Thus, the null hypothesis was not rejected, indicating that physical cleansing has no significant effect on immoral behavior. The result was found to be contradicted to the past study by Lobel et al. (2014) which suggested that physical cleansing predicts higher tendency of immoral behavior and their result was supported by moral licensing theory, which explained that individuals in a morally 'clean' state would have a higher tendency to behave immorally afterwards, while the morally 'clean' state could be achieved by acting morally or going through moral cleansing action. In the same study done by Lobel et al. (2014), it was found that physical cleansing could produce similar effect as for moral cleansing.

However, a study by Harkrider et al. (2013) had obtained similar result where the correlation between moral behavior and moral cleansing was found to be non-significant. The result of the study showed that conducting immoral deeds do not increase the needs of moral cleansing subsequently. Even though the study was investigating moral cleansing as dependent variable instead of independent variable, noting that moral-licensing theory also suggested that previous immoral acts have compensatory effect which would lead to higher needs for moral cleansing or lower tendency to involve themselves in immoral behaviors (Blanken, Ven, & Zeelenberg, 2015). According to Harkrider et al. (2013), relatively low average rate of immoral behavior from the participants due to the factor such as setting, amount of incentives was the main reason why the study was not able to produce the desired and

predicted result. Meanwhile, a low rate of cheating behavior was obtained in this study, where 20 participants (50%) did not cheat at all and only 5 participants (12.5%) scored higher than 4 marks in the designated cheating behavior test. Thus, this might prevent the study's ability to acquire predicted result to a certain extent and some adjustment and improvement were required in the future.

Apart from that, relatively low level of motivation or goal might be one of the contributing factors to the non-significant result. Despite giving frequent verbal encouragement to the participants during the briefing session, such as 'try your best to answer the question', 'get as highest mark as you can', 'the final score will affect your final result of this study', and pen given as a participation reward, the low rate of cheating behavior might indicates that the level of rewards was not attractive enough to elicit immoral behaviors as goal or reward are one of the most remarkable contributing factor to immoral or unethical behaviors (Ordóñez & Welsh, 2015).

Despite all these factors regarding the experimental procedure suggesting that this study's ability to obtain predicted result might be disrupted, the result of this study could be due to the equal strength of the contradicting theory of moral licensing, which is moral consistency, a theory proposed that past moral deeds or a moral 'clean' state would lead to a higher tendency of moral deeds or have a lower needs of moral cleansing in future (Gawronski & Strack, 2012), similar to the famous 'the-foot-in-the-door' effect (Meijers, Verlegh, Noordewier, & Smit, 2015). In the past five years, increasing numbers of studies had attempted to solve the puzzle between these two moral theories as both theories was constantly studied and yielded a remarkable amount of literature evidences (Mullen & Monin, 2016). According to Mullen and Monin (2016), the measurement for immoral behavior employed in this study is lack of baseline control as only negative behavior is measured thus only effect of moral licensing can be observed and studied while interpretation of result to explain moral consistency is unattainable.

Nevertheless, even though the confidentiality of the data recorded and anonymity in this study was ensured and agreed by the participants, the fear of harming their social image and moral identity due to the possibility of being caught cheating in the test might to some degree prevented a number of participants from performing immoral behavior as moral identity plays a decisive role on immoral behavior, any possible harm to moral identity can significantly reduce the temptation to conduct an immoral act (Hertz & Krettenauer, 2016).

### **Gender Differences in Moral Judgment and Immoral Behavior**

Independent sample t-test was carried out to determine whether females showed more extreme moral judgment as compared to male. Another independent sample t-test was carried out to determine whether there is a gender difference in immoral behavior. Out of our expectations, the results proved a non-significant effect of gender differences in both moral judgment and immoral behavior. Although male was found giving slightly harsher moral judgment for the immoral social issues as compared to female, this current research finds no gender differences in moral judgment. An explanation for this can be due to moral dilemmas are driven by the participants' current emotional states (Capraro & Sippel, 2017). As the previous literature suggest, emotions play an important role in altering moral judgment (Eskine, Kacirik, & Prinz, 2011). Hence, this may be one of the moderators of the results we have overlooked.

Chapman and Anderson (2014) also pointed that there are individual differences in the tendency to experience feelings toward physical stimuli before making judgment. Their results suggested that participants with high physical disgust trait showed more extreme moral transgressions. According to Friesdorf, Conway, Gawronski, (2015), a meta-analysis of 113 moral-related studies had yielded a result that gender difference in moral orientation is not manifest and significant, which further suggested that

gender might not play an impactful role in predicting immoral behavior. As a result, gender is not a strong predictor of moral judgment and immoral behavior.

Nevertheless, the insignificant gender difference found in this study on immoral behavior are also inconsistent with findings mentioned in literature review that suggested that gender differences on empathy and emotion can be demonstrated on their moral behavior. An inference can be made as the immoral behavior (cheating) involved in this study does not potentially bringing harm to others welfare thus having no correlation with their empathetic concerns.

### **Recommendations for Future Studies**

This current study has a few possible limitations. In this study, participants' response effort may have been overlooked. As participants' response effort may affect participants' motivation in the experiments, hence the morality ratings and their intention to cheat may be greatly affected. To further enhance the quality of future replications, researchers should take participants' response effort into account, by using more attractive incentives in triggering greater motivations in completing the experiments. However, it is also important to note that increasing amount or attractiveness of incentives solely for research purpose might also yield negative effect on participants such as harming their moral self-regard. It was suggested by previous study that the effect of residual experimental experience might reflect on participants' temptation to behave something unethical or immoral afterward according to moral licensing theory. Therefore, it was highly recommended that researchers who conducted studies related to moral licensing theory should further emphasize on the importance of taking any possible steps to reduce this profound effect while increasing the amount of incentives given in the experiments (Harkrider et al, 2013)

As mentioned previously, this study found that the current instrument adopted to measure cheating behavior might be lacking of baseline control, hence contributing to the remarkably low average rate of cheating behavior. Therefore, it is recommended for future researchers who interested to study moral licensing and moral consistency to employ instruments or measurements with greater baseline control, such as a neutral initial behavior so that the sequential behaviors can be compared thus explanation can be made on the observed balancing effect (more or less positive; more or less negative) (Mullen & Monin, 2016). In addition to that, steps or procedures aimed to improve the anonymity of the experiment can be taken in order to encourage the cheating behavior during the experiment for research purpose as any perceived harm to moral identity can prevent individual from involving himself in immoral deeds.

Last but not least, the effect of moderators might play a meaningful role in providing new insight and perspective to the long-going argument on research field between moral licensing and moral consistency theories. For instance, a past study found that moral consistency are more manifested when individual thinking about something abstractly while moral licensing is more evident when individual is going to perform something concretely (Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009). While another study by Cornelissen, Bashshur, Rode, and Le Menestrel (2013) stated that moral licensing effect is more likely to be observed when the immoral behavior is evaluated by consequence instead of principle. For instance, when evaluating a behavior by principle, the behavior is perceived to be immoral because of the action itself but not because of the consequences brought by the behavior.

## **Conclusion**

To conclude, the current study had achieved the research objectives in determining the effect of physical cleansing on moral judgment and moral behavior. Based on the data analysis, there is no

significant difference between hand wiping and control group in moral judgment and moral behavior. At the same time, there is also no significant gender differences in generating moral judgment and conducting immoral behavior. For the results achieved from the moral judgment and immoral behavior, there may be several things we have overlooked. Participants' response effort, participants' motivational level would be possible determinants for the inconsistent results we have obtained.



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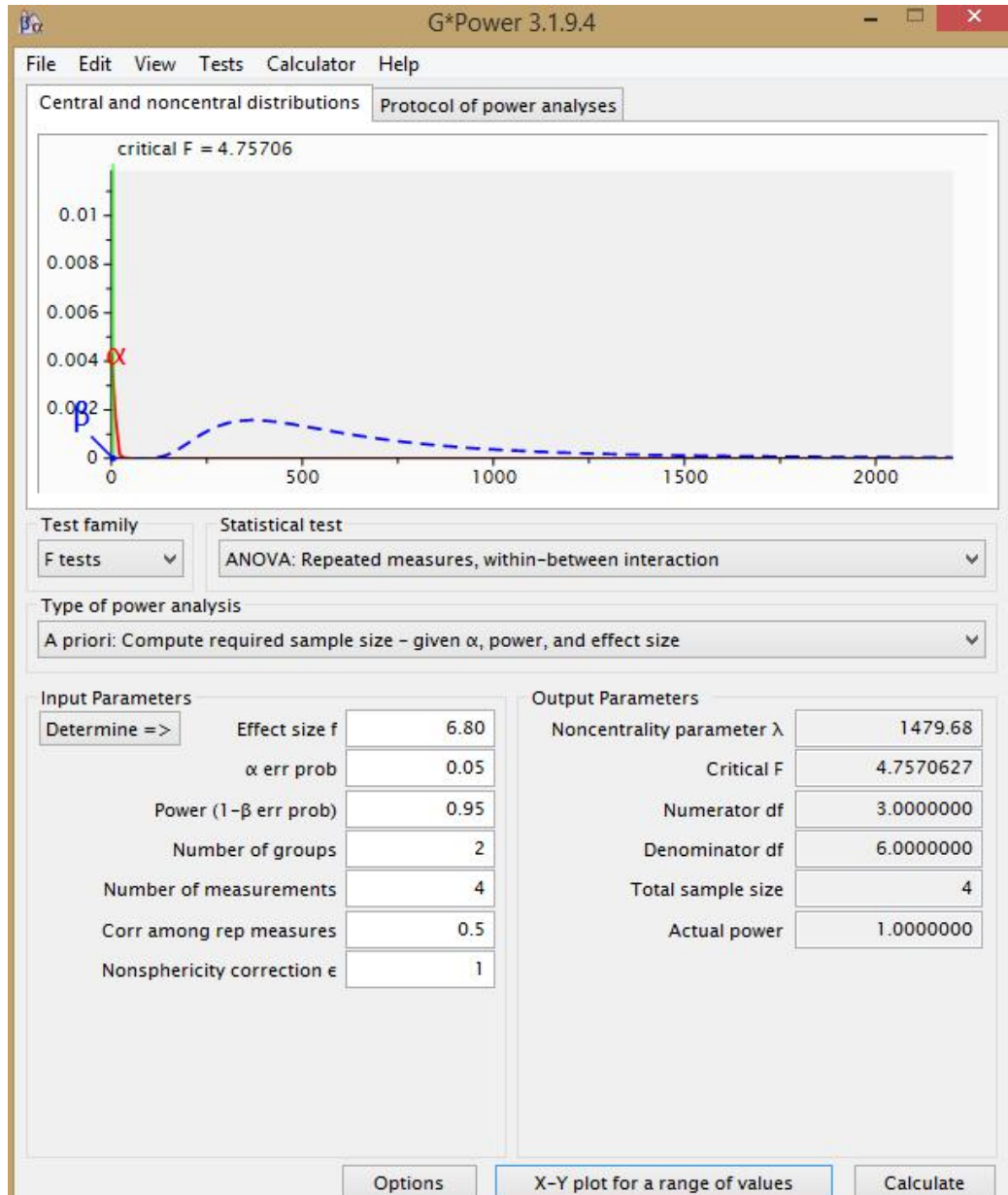
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## Appendices

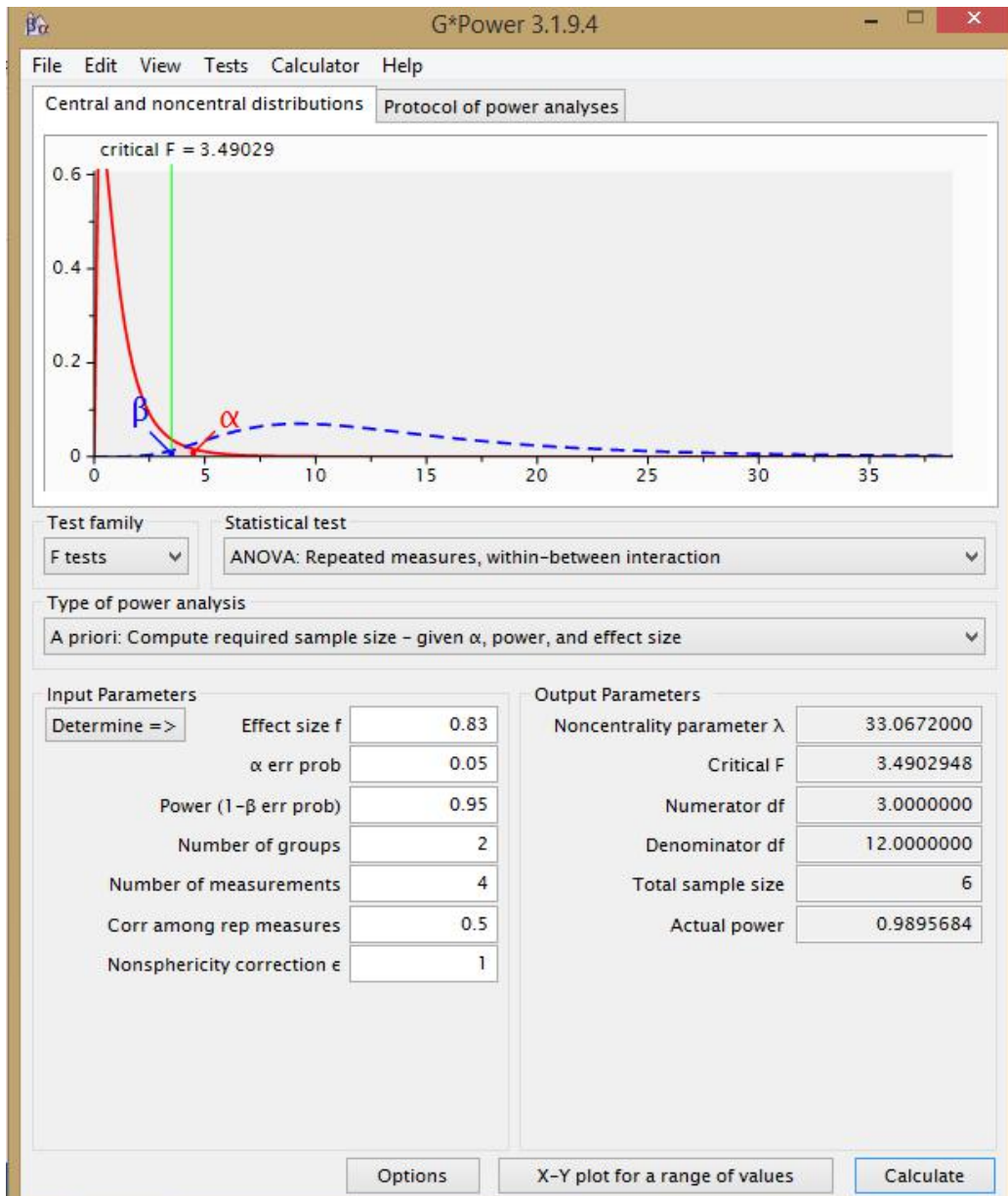
### Appendix A: Sample Size Approximation

#### Physical Cleansing and Moral Judgment





## Physical Cleansing and Immoral Behavior



### Appendix B: Turnitin Report

[Document Viewer](#)

#### Turnitin Originality Report

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1% match (publications)	<a href="#">T. Miah, J.L. Alty, "Vanishing windows: an approach to adaptive window management", Knowledge-Based Systems, 1999</a>
1% match (student papers from 19-Nov-2012)	<a href="#">Submitted to HELP University College on 2012-11-19</a>
<1% match (student papers from 05-Feb-2018)	<a href="#">Submitted to University of Strathclyde on 2018-02-05</a>
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## Appendix C: Participants' Information Sheet

**Informed Consent Agreement for Participation****Purpose**

You are being asked to participate in a research study that investigate moral judgment and moral behavior. Also, some of you may be asked to evaluate a newly launched wet tissue brand. Please read this form carefully and ask any questions regarding to this study before agreeing to be in the research.

**Information about Participants' Involvement in the Study**

The study will take place in the Psychological lab at block P, UTAR Kampar. It will take you approximately 20 minutes to complete the tasks given.

If you agree to be a participant in this research, we would ask you to do the following things:

1. Complete a demographic form
2. Observe 72 images and complete a morality questionnaire
3. Complete a questionnaire that measures your creativity

**Possible Risks or Discomfort**

You may experience discomfort in your participation due to seeing some photos related to social issues. You can withdraw from the study when you feel like you are unable to continue the research.

**Benefits**

The result of the study will contribute to the knowledge of psychology field.

**Compensation**

You will receive a small gift of appreciation after the completion of the study.

**Voluntary Participation**

You can choose not to answer any question you do not feel to answer. Participation in this study is voluntary. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled.

**Confidentiality**

Any information that you provide will be treated with the utmost confidentiality and anonymity. None of the information will identify you by your name. All records will be handled only by the researchers of this study.

However, your identity will not be disclosed, and only reviewed by researchers in this study.

**Contact Information**

If there are any questions at any time about the study or the procedure, or you experience adverse effects as a result of participating in the study, you may contact the researchers of the study. In addition, you may contact the supervisor of the research.

Student research Investigator:

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Research Supervisor

Ms. Natasha Amira Binti Hushairi

[amirahu@utar.edu.my](mailto:amirahu@utar.edu.my)

**Consent**

By signing below, I acknowledge that I have read and understand the above information.

---

Study Participant Signature

Date:

---

Signature of Person who explained this study

Date:

## Appendix D: Remote Associates Test for Measuring Cheating Behavior

**Remote Associates Test (RAT)**

The Remote Associates Test (RAT) is a test of creative potential. It was developed by Martha Mednick in 1962 and has since been considered as a valid measure of creativity.

Each RAT question presents three cue words that are linked by a fourth word, which is the correct answer.

The following test will be divided into three session according to their difficulty, and you are required to try to answer every question.

Example given

	First cue:	Second cue:	Third cue:	Answer:
1.	Night	Wrist	Stop	<b>Watch</b>
2.	Measure	Worm	Video	<b>Tape</b>

**You are given not more than ten minutes to finish this test, you are highly recommended to answer every single question.**

**Easy Session**

	First cue	Second cue	Third cue	=	Answer
1.	Set	Program	Cable	=	
2.	Broken	Clear	Eye	=	
3.	Sandwich	House	Golf	=	
4.	Worm	Shelf	End	=	

5.	Cottage	Swiss	Cake	=
6.	Cream	Skate	Water	=
7.	Fountain	Baking	Pop	=
8.	Rocking	Wheel	High	=

**Hard session**

	First cue	Second cue	Third cue	=	Answer
9.	Rope	Truck	Line	=	
10.	Off	Military	First	=	
11.	Spoon	Cloth	Card	=	
12.	Cut	Cream	War	=	
13.	Note	Chain	Master	=	
14.	Shock	Shave	Taste	=	

**Very Hard Session**

	First cue	Second cue	Third cue	=	Answer
15.	End	Line	Lock	=	

16. Control	Place	Rate	=
17. Lounge	Hour	Napkin	=
18. Artist	Hatch	Route	=
19. Pet	Bottom	Garden	=
20. Mate	Shoes	Total	=
21. Self	Attorney	Spending	=
22. Land	Hand	House	=

## Appendix D: Moral Judgement Questionnaire



Dear participants, you will be presented with 72 images.

After viewing each of the images, you will be required to rate how do you feel towards the images in terms of the morality.

Kindly press the arrow button below to proceed to next page.

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## Appendix E: SPSS Output Results

**RQ1: Physical cleansing and moral judgment****T-Test**

[DataSet1] C:\Users\user\_PC\Desktop\UTAR\FYP 1\FYP 11\Complete data set with participant code.sav

**Group Statistics**

	Group	N	Mean	Std. Deviation	Std. Error Mean
ImmoralMean	C	20	2.6944	.55680	.12450
	H	20	2.4861	.40889	.09143
MoralMean	C	20	7.2042	.57610	.12882
	H	20	7.1208	.56298	.12589

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
ImmoralMean	Equal variances assumed	1.700	.200	1.349	38	.185	.20833	.15447	-1.0437	.52104
	Equal variances not assumed			1.349	34.876	.186	.20833	.15447	-1.0530	.52196
MoralMean	Equal variances assumed	.002	.964	.463	38	.646	.08333	.18012	-2.8129	.44796
	Equal variances not assumed			.463	37.980	.646	.08333	.18012	-2.8130	.44797

**RQ2: Physical cleansing and immoral behavior****T-Test****Group Statistics**

	Group	N	Mean	Std. Deviation	Std. Error Mean
RATscore	C	20	1.40	2.210	.494
	H	20	1.95	2.523	.564

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper	
RATscore	Equal variances assumed	.232	.633	-7.733	38	.468	-.550	.750	-2.068	.968
	Equal variances not assumed			-7.733	37.352	.468	-.550	.750	-2.069	.969

**RQ3: Gender differences on moral judgment**

**T-Test**

**Group Statistics**

Group	Gender	N	Mean	Std. Deviation	Std. Error Mean
C	ImmoralMean	Male	9	2.6543	.60303
		Female	11	2.7273	.54360
	MoralMean	Male	9	7.3333	.35897
		Female	11	7.0985	.70726
H	ImmoralMean	Male	8	2.3715	.15137
		Female	12	2.5625	.50823
	MoralMean	Male	8	7.2639	.35542
		Female	12	7.0255	.66503

**Independent Samples Test**

Group			Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
C	ImmoralMean	Equal variances assumed	.210	.652	-.284	18	.779	-.07295	.25654	-.61193	.46603
		Equal variances not assumed			-.281	16.381	.782	-.07295	.25936	-.62173	.47583
	MoralMean	Equal variances assumed	6.392	.021	.903	18	.379	.23485	.26021	-.31184	.78153
		Equal variances not assumed			.960	15.382	.352	.23485	.24452	-.28521	.75491
H	ImmoralMean	Equal variances assumed	7.009	.016	-1.025	18	.319	-.19097	.18639	-.58256	.20062
		Equal variances not assumed			-1.223	13.740	.242	-.19097	.15617	-.52652	.14457
	MoralMean	Equal variances assumed	5.593	.029	.924	18	.368	.23843	.25796	-.30352	.78037
		Equal variances not assumed			1.039	17.420	.313	.23843	.22945	-.24478	.72163

**RQ4: Gender difference on immoral behavior**

**T-Test**

**Group Statistics**

Group	Gender	N	Mean	Std. Deviation	Std. Error Mean
C	RATscore	Male	9	.56	1.130
	Female	11	2.09	2.663	
H	RATscore	Male	8	.88	.835
	Female	12	2.67	3.025	

**Independent Samples Test**

Group			Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
										Lower	Upper
C	RATscore	Equal variances assumed	5.544	.030	-1.609	18	.125	-1.535	.954	-3.540	.469
		Equal variances not assumed			-1.731	14.039	.105	-1.535	.887	-3.437	.366
H	RATscore	Equal variances assumed	16.280	.001	-1.621	18	.122	-1.792	1.105	-4.114	.530
		Equal variances not assumed			-1.944	13.381	.073	-1.792	.922	-3.777	.194