

The Relationship Between Confirmation Bias and Depression Level

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ABSTRACT

This study is to examine the relationship between depression level and confirmation bias level. A total of 81 participants participated in this study using the questionnaire to test the relationship between the two variables. The result, surprisingly shows a huge difference than what have been predicted, in which people with lower depression level, have higher level of confirmation bias.

Keywords: *Depression level, Confirmation bias, Level of confirmation bias, Depression.*

1. INTRODUCTION

Confirmation bias is ubiquitous throughout the world, even though people are much more educated than the past, confirmation bias is still existing and hugely affects the daily life. People's belief is really hard to change, even through education training, it still only does a little effect on people's mind, which is due to the daily stress that people encounter every day. Those stresses will end up to the serious illness, which is depression. Some people who face those daily stress, will never end up to depression, but some do and actually deeply been affected. Through this study, people are aiming to figure out whether there is a relationship between confirmation bias and depression, using the correlational study.

2. LITERATURE REVIEW

Confirmation bias is what all the human being had, and is what that help persist people's belief and keep helping people to reach the goal they want eventually. A confirmation bias is the tendency to seek, select, or to interpret the information that is confirmed through human's pre-existing belief, and this phenomenon is ubiquitous [1]. In other word, confirmation bias is the tendency to interpret the information in a way that confirms one's preexisting belief. This phenomenon is well known in the forensic science [1]. People are willing to believe in what they previously believe, and seek the information about that pre-existing belief, and make

a quick decision in different situations [2]. According to Dror and Charlton, who have been conducted the study of through the trial, the fingerprints examiners can be changed through their belief, when they know that the suspect has the alibi [3]. When people's confirmation bias is high in the forensic science, this can be an issue with it, because with the quick decision of not concerning the new information and the old information coming through the current situation, and merely using pre-existing idea of how this world wok, can lead to the error, and this is all because the interpretation of the current situation is not correct [2]. Moreover, confirmation bias is a one-sided interpretation of the ideas that individuals can selectively recall, collect favorable details, and ignore negative or conflicting information, to support their own ideas. In the life we live in, people tend to find the confirmation rather than by searching for falsification [4]. People are not only preferring and tending to find the confirmation, but they also will perceive the expert information into account. In several studies, researchers have shown that once people tend to focus on input data consistent with them, they will tend to ignore other contradictory information [5]. Confirmation bias is just like someone intentionally preparing a one-sided- argument, such a debater preparing for a match [4]. People tend to search the information that support it, which they assume the truth of the hypothesis in question, and search for evidence accordingly [4]. For example, Muris, Debipersad, and Mayer, people often boiled down to the

conditional assumption of the type "If P, then Q" with a certain stimulus or situation (P) being predictive of a particular outcome (Q) [6]. To clarify the author's claim, people often make the assumption like if the rain has come then we must bring the umbrella out, but does it really necessarily need to bring the umbrella out since outside is raining? Researcher has shown that people give greater weight to information that supports their belief than to the information that is counter to them [7]. Traut-Mattausch, Jonas, Frey, and Zanna people prefer information consistent with their beliefs, attitudes, and preference, and neglect inconsistent information [8]. People mostly tend to believe in the thing that confirms their belief, no matter the evidence supporting their idea is right or wrong, instead of searching the real evidence they tend to search for the "advantage" evidence to help them support their own belief. For example, once they have been forming a hypothesis, they will tend to search for the information that supports it, instead of against it, even by attending primarily to the favored hypothesis, they fail to generate an alternative selection and thus do not see the relevance of the information supporting another explanation [9]. When testing whether a particular instance is consistent with a given hypothesis, people tend to request information about the instance that is likely to confirm and unlikely to disconfirm the hypothesis [10]. Therefore, people with a high confirmation bias can really affect others even to themselves, the most relevant example can be in the criminal justice system. Price and Dahl have found that an investigator was influenced by the order in which he or she receives the evidence is clearly problematic because it implies that the same case may not be pursued had a certain piece of evidence been encountered at a different time in the investigation [11]. Ask and Granhag "has recently conducted the several studies in which they have found support for the confirmation bias in investigative decision making, via 'asymmetrical skepticism' of disconfirming evidence" [10]. Price and Dahl found that beliefs developed early in an investigation could cloud, or interfere with, the ability to appropriately evaluate new evidence [11]. He also found that evidence reliability estimates were consistent with the overall decisions related to the case. That is, if the investigator thought that the suspect was guilty, then the evidence was evaluated as more consistent with guilt, and if the investigator thought that the suspect was innocent, then the evidence was evaluated as more consistent with innocent [11]. Because people have some level of confirmation

bias throughout their life, whether depression level will have the impact on the confirmation bias level is important to figure out. Through our living in this world, we are under various circumstances, and some will crush our life and others will help us pursue a better self. Therefore, people somewhat living with depression along with their life, some people live with none depression, some live with depression, and some people live with a high depression level within a certain period of time. Overland, Woicik, Sikora, Whittaker, Heli, Skjelkvale, Sivertsen, and Colman declare that depression is really common in our life, report has shown that, there are 6.6% in the USA, and 5.5% in Canada, and 7.4% in Finland, and most importantly a lot of diseases are coming along with the depression [12]. Several studies have been shown that environmental factors, can be the factors that affect our level of depression [12]. With the depression, people will have higher anxiety and face the problem on concentration, sleeping problem, feeling guilts, or even worthlessness, and also when people have some level of depression can lead to difficulties in social, working place, and home functioning [13]. Therefore, depression has been come to taking an important role in some people's lives, and can affect also affect their living quality. This paper aims to figure out that whether the current degree of depression individual will influence the level of confirmation bias by using questionnaire form to test the result, therefore, I hypothesis that people with a higher degree of depression will have a higher level of confirmation bias.

3. METHOD

3.1 Participants

Within the study, there were 82 questionnaires, with 36 male and 42 females, and 82 participants in the range of 18-41 years old were recruited in this study and one dropped the study, because of not feeling comfortable through the study, those participants who were participating in this study were either recruited from online website or through peer invitation. As the result, we have been collecting the total 81 of questionnaires back from the participants. The study was been created through the questionnaire style, that participants are been given the survey to complete, and the whole study was to use the questionnaire to examine people's level of depression and confirmation bias, and to look for the relationship between confirmation bias and depression level.

3.2 *Materials and Procedures*

The study was based on questionnaire, so the participants were recruited through an either online or peer invitation, the whole study will be complete through online created survey. All participants will be signing the consent form first then continue to do the experiment. After signing the consent form, they start with the first part of the questionnaire, which is aiming to test their level of depression by looking at their past two weeks, within this first part of the questionnaire, the participants will be chosen one of the four answers to answering the question, the four questions, are "not at all", "several days", "more than half the days", and "nearly every day", each was rated as in order above, 0, 1, 2, and 3 points. After the participants completed the first part of questionnaire, they were tested for high or low levels of depression according to their scores. With under 10 points, participants will be rated as their current level of depression are low, and for the participants who score higher than 10 points or 10 points will be rated as their current level of depression are high. After finish the first part of the questionnaire, they will then immediately come with testing their level of confirmation bias, to test their level of confirmation bias, they will need to follow the instruction and answering the test. Through the instruction, the participants will be told that "we are now going to play the game, through this game, what you need to do, is to figure out what is the rule through this game." Within the game, participants were given the first three random numbers, which tell them that this is what we have chosen, the rule that some sequence of three numbers should be obeyed and some do not need to, what you need to do is to guess what the rule is. With the participants given the random three numbers in each trial to guess what the rule is, the answer that they will be given is always the yes answer, which is to let them believe that the three number that they put in are correct, and what they need to do, is to keep going, and eventually figure out what the rule is. However, the actual rule is pretty simple, the numerical value need to be greater than the number before. To examine participants' level of confirmation bias, the more they click on "I still don't know the rule", and keep pressing the "next" button, to get the confirmation of their pre-existing belief, the higher their level of confirmation bias is. Therefore, when participants click more than 5 times, they will be rated as high level of confirmation bias, including pressing 5 times, and when participants click less

than 5 times, they will be rated as low level of confirmation bias.

3.3 *Results*

Through the bar graph shown in Figure 1, there are 20 percent of participants who have the high-level degree of depression with the high confirmation bias level, and there is only 6 percent of participants who were in the high-level degree of depression with the low confirmation bias level. Surprisingly, 38% of participants who has the low-level degree of depression were in high level of confirmation bias, and even there are 34% participants, shown low-level degree of depression with low-level of confirmation bias. This really shows that there is some relationship between depression and confirmation bias. The lower the depression participants had, the higher level of confirmation bias they will hold.

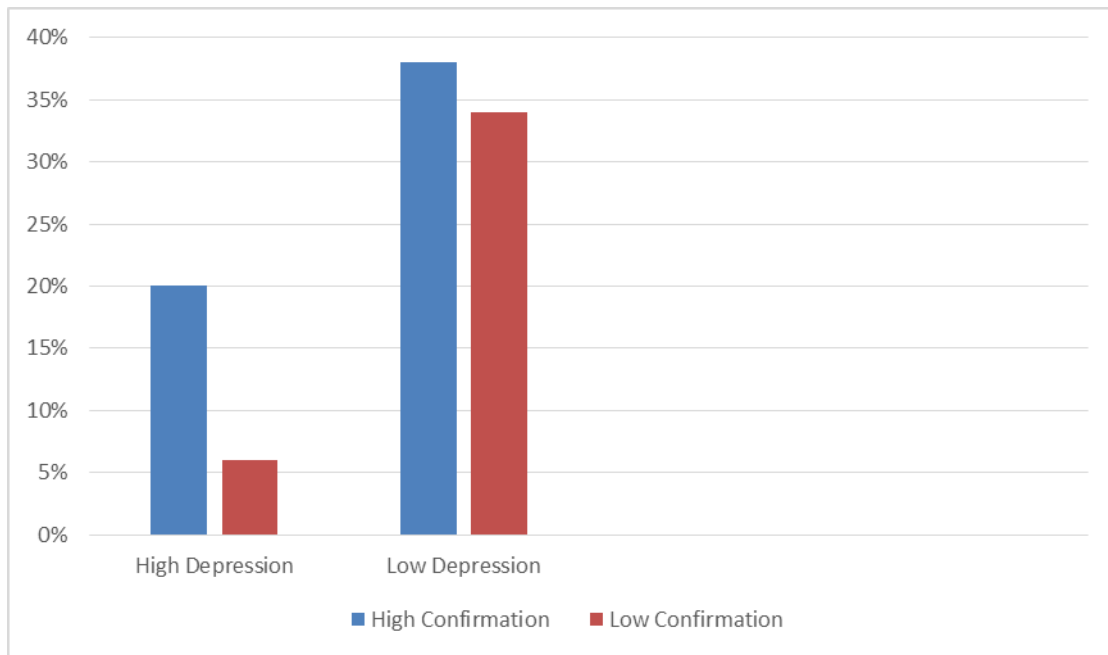


Figure 1 Relationship between depression level and confirmation bias.

4. DISCUSSION

The finding in this current study, which is totally opposite of what the hypothesis was predicted, people with low level of depression tend to have high level of confirmation bias. However, through "Figure 1", it is clear that our depression level does have some impact on our level of confirmation bias. People with confirmation bias tend to seek and select the information that confirms their previous beliefs, and ignore all the disadvantaged information that comes to them [1]. People with depression have higher level of anxiety, that cause people to have sleeping problems, and difficulties on concentration, which will lead them to seek the information that is confirming their pre-existing belief [13]. However, "Figure 1" shows totally different, that people with low level of depression will have much higher level of confirmation bias, and this might because of different factors that impact people's confirmation bias. In the current study, due to the pandemic outbreak of Covid-19, there is less choice for us to choose the research method for conducting the study, because we must be distancing with others, and due to the pandemic circumstances, it is really hard to conduct an experiment, especially for participants to come to the lab. The limitation through this current study, not only the style of the research, but also the questionnaire itself, can be problematic, which is because that there is no control in the experiment, which there can be

various factors that can impact this study. Also, because this is a correlational study, so there may be a third variable, that cultural differences, and the understanding of the test, might influence the result of the study. Most importantly, the reason why this study still be conducted through this problematic questionnaire, is because to open the possibility of the relationship between depression level and confirmation bias level, and through this study, it can lead to more accurate research. Also, the reason why this experiment has no control in the experiment, is because this is questionnaire research with correlation study, which is mainly to see the relationship between the two variables, and that is the reason why there is no such control in this experiment, and the main problem of this study, is because of there is no control in this study, which lead to a possibility that others factors can also be involved in this study, for example, participants' current mood on doing the questionnaire, and whether there is a dishonest answer, or a response bias.

5. CONCLUSION

Therefore, for future study, hopefully, there can be an experimental study, with the control of the variables and collect more sample, which can increase the accuracy of the result. Due to the pandemic outbreak, we have a hard time, and through this study, the purpose is to see whether there is a relationship between the two variables,

and to open the possibility of the future study, for future to conduct an experimental study that can be recruited more participants to the lab, and within the experimental study, we also can decrease the possibility of a response bias and a dishonest answer through using the quinonimine form of testing the result.

AUTHORS' CONTRIBUTIONS

This paper is independently completed by Po-Teng Kao.

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