

A TREATISE ON THE IMPLICATIONS OF COUNTERFACTUAL THINKING ON DIVERSE POSITIVE PSYCHOLOGICAL CORRELATES OF HUMAN WELL-BEING

[A Meta-Analytical Report]

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Abstract: Counterfactual thinking as a phenomenon, has intrigued psychologists, researchers and philosophers alike, in view of the fact that it reveals significant information about the nature, reason, limits and the ways of logic of human appraisal of the social world. Counterfactual thinking in social psychology, comes to refer to the tendency of an individual to imagine other, novel outcomes or alternatives in a given situation than the outcomes which originally transpired. This treatise attempts to examine in greater depth, the nature, as well as the principles underlying counterfactual thinking. It also endeavors to inquire about the nature of the relationships that counterfactual thinking shares with a multitude of positive psychological constructs, extending its focus to the implications that originate as a result of such associations.

Index Terms - Counterfactual Thinking, Positive Psychology, Well-Being, Positive Affectivity.

INTRODUCTION

"For all sad words of tongue or pen, the saddest are these:

'It might have been!'"

- Jeaf Whittier (1898)

The human brain is a complex organ. While it assists human beings in their journey of meaning-making and deriving sense out of their social world, in a manner deemed to be as logical and error-free as possible, believe it or not, it falls short of this very goal, i.e. total rationality, more often than we may think.

In our tireless pursuits to perceive and appropriate our social world, we are inevitably subject to a huge array of tendencies, which when accumulated, may lead to serious errors in social cognition.

These errors in social cognition, although undoubtedly erroneous in nature, nevertheless have an important role to play in terms of their functional utility i.e. adaptation. These 'tilts' in reality of sorts, enable us to divert and subsequently sustain our attention and focus only on that information which is pertinent to us, thereby reducing the effort and energy invested for making sense out of our social world.

Thus, like two sides of the same coin, errors in social cognition also have opposing roles to play. Opposing roles come to be understood in the sense, that although these 'tilts' of sorts provide us with tangible benefits, these benefits often come with a price.

There exist a plethora of ways in which our perception of the social world takes a departure from reality.

We shall now get acquainted with one such basic tendency which has been observed to occur in a variety of situations, leading to potential errors in social cognition, known as Counterfactual Thinking (C. F. T.).

Counterfactual Thinking : Definition, Nature & Meaning

As the name suggests, counterfactual thinking denotes a kind of thinking process that seeks to 'counter' the 'factual' present or reality. counterfactual thinking comes to be distinguished from a closely related phenomenon of pre-factual thinking (that involves imagining possible outcome of future scenarios), on the basis, that counterfactual thinking lays emphasis on perhaps how the 'past' might have transpired in a novel manner or that how the present circumstances could be dissimilar to what they actually are in the present. Words and phrases such as " if only!", "might have been", "almost" and "what if" are the most commonly observed terminologies used by people to express a counterfactual thought process.

Antecedents of Counterfactual Thinking

Three types of antecedent situations have been observed to trigger counterfactual thinking more often than not.

First, the most commonly observed trigger for counterfactuals is the experience of a difficult situation or negative/unpleasant emotion. As posited by Sigmund Freud, the father of psychodynamic school of thought, human beings innately strive to experience pleasure and avoid pain to the extent possible. Thus, when faced with experiences that arouse negative, uncomfortable and unfavorable emotions, the human mind displays startling quickness in imagining and evaluating alternative outcomes/situations that might have been.

Second, experiencing a 'near-miss' of sorts with highly desirable outcomes, are more likely to generate counterfactuals as opposed to highly desirable outcomes that were not characterized by such temporal or distal proximity towards their accomplishment. This sense of being 'almost there' , yet not there enough, have been observed to generate more intense counterfactual generation, than when the desired goal/event/outcome was not as close to its accomplishment.

Third, human beings have also been observed to show a prominent inclination to engage in counterfactual thinking when they were faced by an outcome which was completely unprecedented. Individuals are inclined to think in terms of " if only " or " what if " when the extent of deviation between what s/he had assumed and what actually had transpired was significantly greater than when it was not, thereby inviting focus, contemplation and quiet self-reflection as to how and why a particular event/situation/outcome occurred.

Classifications in Counterfactual Thinking

Extensive research has now lead to the differentiation among the varieties of counterfactual thinking that are observed, namely upward counterfactual thinking, downward counterfactual thinking, other-referent counterfactual thinking and self-referent counterfactual thinking, additive counterfactual thinking and subtractive counterfactual thinking.

In upward counterfactual thinking, the pivotal focus comes to center on generating alternatives better, brighter and preferable to the actual circumstances, when compared with downward counterfactual thinking, which concerns itself with generating outcomes that are more grim and unfavorable to the prevailing reality.

Self-referent counterfactual thinking involves counterfactuals about actions of the self as opposed to other-referent counterfactual thinking, which involves counterfactuals about actions of others.

Additive counterfactual thinking involves thinking about pursuing or actively initiating events which did not , while subtractive counterfactual thinking involves thinking about the elimination of an action/event that originally occurred.

This treatise shall be focused more on the downward variant of counterfactual thinking and its wide-ranging implications on affect, behavior and beliefs in human beings and a further investigation into the relationship between downward counterfactual thinking and a plethora of related positive psychological constructs, chiefly diverse aspects of positive well- being in humans.

Well- Being: Meaning & Nature

The definition of human well-being has witnessed drastic changes from the past decade or so. Human well-being in contemporary times, comes to be defined as not as the mere absence of illness or disease. It is seen rather, as a complex combination comprising of an individual's social, mental, emotional and physical factors, seen as contributing significantly towards the quality of life being experienced by the individual. Such a notion of human well-being serves to reiterate the point that each and every single aspect of the aforementioned domains in an individual's life influences his/her state of wellbeing.

Correlates of the Human State of Well-Being

There exist certain positive attributes that seek to enhance this state of well-being in humans. Pivotal among them are the following phenomena:

- Happiness

It is defined by the mental state of well-being which is characterized by pleasant emotions ranging from positive affect such as contentment to an intense sense of joy at the other end.

- Life-satisfaction

It is defined as an individual's assessment of a highly cognitive nature of those attitudes and feelings comprising one's life at a specific point in time, that may range from the positive to negative.

- Psychological flexibility

It is defined as the ability to being fully present in the present moment as a conscious being and according to the requirements of the situation, changing or persisting in behavioral patterns in compliance to committed values.

- Behavioral regulation

It is defined as an individual's conscious and personal thoughtful management of that process through which one guides one's own feelings, thoughts and behaviors to accomplish favorable outcomes.

- Religiosity

It is a term to define the role which religion comes to play in the lives of people, through its influence on individual's commitment, beliefs and levels of engagement with work.

- Self-enhancement

It is defined as a kind of motivation which seeks to make individuals feel good about him/her in order to maintain self-esteem, especially in circumstances of failure.

- Positive behavioral intention

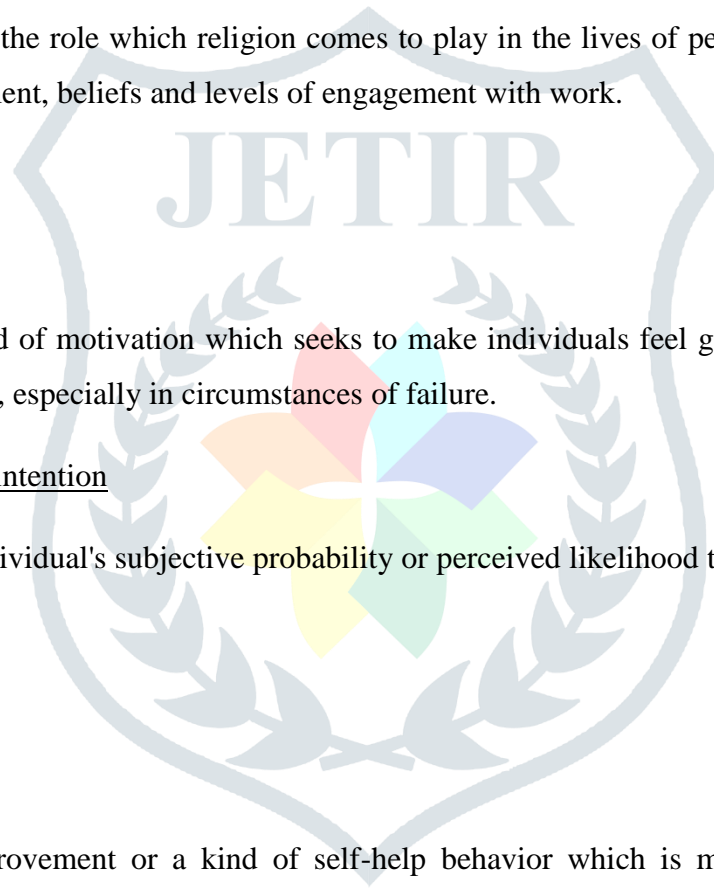
It is defined as an individual's subjective probability or perceived likelihood to engage in non-maleficent or beneficent behavior.

- Self-improvement

It is defined as improvement or a kind of self-help behavior which is majorly self-guided and has a considerable psychological basis.

- Positive affectivity

It is defined as the individual differences observed in emotional experiences that are positive. Positive affectivity is often linked to efficient and accurate emotional information processing.



- Absence of negative affectivity

It is defined as the individual differences observed in emotional experiences that are negative, subsuming a plethora of affects such as nervousness, fear, guilt, contempt, disgust and poor self-concept.

- Perceived sense of control

It is defined as an individual's belief to determine one's own actions, behavior and internal states and to influence the environment to accomplish favorable goals.

- Adaptive levels of perfectionism

An optimal level of perfectionism is defined as an individual's intrinsic striving towards a state of flawlessness through the setting up of very high standards of performance across multiple spheres.

- Belief in free-will

As a fundamental assumption underlying the humanistic school of thought, it is defined in terms of personal agency, giving people responsibility for their own actions and choices made.

This meta-analytical written discourse shall delve into the aforementioned correlates of human well-being in terms of their association with the cognitive error of counterfactual thinking, as well the implications that arise as a result of such associations.

REVIEW OF LITERATURE

One of the hallmark researches conducted in this sphere was undertaken by Medvec and Gilovich (1995), who in a research conducted on Olympic athletes and those of the Empire State Games, found upon an analysis of the emotional responses of the silver and bronze medalists, that the happiness levels of bronze medalists tended to be much higher when compared to their silver medalist counterparts. This particular research finding provides us with a credible text of literature, supporting the existence of a positive correlation between downward counterfactual thinking and levels of happiness.

Counterfactual thinking has also been accredited with a role in the extent to which religious salience comes to be observed in individuals. Buffone and Gabriel (1999), in a research study conducted to elicit a relationship between downward counterfactual thinking and religiosity, found across a series of two experiments that individuals who generated a greater number of downward counterfactuals, displayed an increased belief and perception of God's role in outcomes/events, as opposed to their upward counterfactual generating counterparts. The findings of this research are sufficient to document a positive correlation between downward counterfactual thinking and religiosity.

While contrasting free-will with determinism, Alquist and Stillman (2004), in a research study conducted to elicit a relationship between self-referent counterfactual thinking and free-will, demonstrated through a series of experiments, that both the aforementioned conceptualizations are based on the same assumption of 'multiple possibilities in the same situation', which contradict the deterministic opinion of only 'one outcome per situation'. This research finding is indicative of a positive correlation between self-referent counterfactual thinking and belief in free-will.

Some researchers have also successfully linked the social psychological construct of counterfactual thinking with the field of neurosciences.

Hoeck and Ampe (2011), in a research study conducted to explore the distinct as well as the common neural activities involved in counterfactual and future episodic thinking, demonstrated that both the types of thinking shared the usual brain network. The findings of this research support the functional as well as the structural commonality shared by future episodic and counterfactual thinking.

Several psychologists have devoted much resources in conducting researches that seek to associate counterfactual thinking with diverse social psychological constructs as well.

Lobel and William (1892), in a research conducted to elicit a relationship between perceived social status and counterfactual thinking, demonstrated that individuals who were objectively better off in a particular aspect did not display significant levels of gratification when compared to their objectively worse-off counterparts, if those particular aspects did not significantly contribute towards the enhancement of their own perceived social status. This research finding is supportive of the existence of a negative correlation between perceived social status and counterfactual thinking.

On a similar vein, Levy (2002), in a research conducted on 363 young male and female participants sought to explore the inter-relatedness between counterfactual thinking, defensive attribution and by-stander blaming effect. The findings of this research indicated towards the existence of a positive correlation between defensive attribution

and counterfactual thinking and also highlighted the mediatory role played by counterfactual thinking between bystander blaming effect and defensive attribution.

Festinger (1954), too, in a research conducted to elicit a relationship between counterfactual thinking and social comparison, found that an individual's perception of his/her objective and factual circumstances were greatly affected by how their own situations fared when compared with the prevailing circumstances of significant others. This research finding is indicative of a positive correlation between social comparison and counterfactual thinking.

Similar findings have been elicited by Frank and Cook (1995), who in a research conducted to elicit a relationship between downward social comparison and counterfactual temptation, found that since downward social comparison did not evoke a change in the perceived social status, it did not constitute significantly towards counterfactual temptation. This research finding indicates towards the existence of no significant correlation between downward social comparison and counterfactual temptation.

Interestingly, Higgins (1996), in a research study conducted to explore the commonality of the shared cognitive impulses underlying counterfactual thinking and principles of avoidance behaviors, found that individuals when faced with prospects of unpleasantness in the form of notorious, impending stimuli, exhibited behaviors that were aimed at the avoidance of that particular unpleasant stimuli (thus relying on upward counterfactual thinking). The results of this study are supportive of the existence of certain common cognitive impulses underlying principles of avoidant behavior and counterfactual thinking.

In the field of medical sciences too, noteworthy researches have been conducted seeking to explore the functions of counterfactual thinking on patients diagnosed across a plethora of medical conditions.

Jonas (2008), in a research study conducted to elicit the shared impact of counterfactual thinking and regret on the mental health and well-being of HIV-positive patients, found that both the aforementioned psychological phenomenon exerted a negative influence on the patient's mental well-being. The findings of his research highlight the negative implications of counterfactual thinking on the mental health of HIV-positive patients, by bringing into salience their significant level of personal responsibility in developing the infection.

Research endeavors undertaken to observe the effect of counterfactual thinking on medical conditions is not limited to the age-group of adults. Progressive researches have been conducted on observing the impact of counterfactual thinking on developmental conditions that have implications on children as well.

Begeer and Stegge (2006), in a research study conducted on a sample of 71 children diagnosed with Autism Spectrum Disorders to elicit the relationship between counterfactual thinking and emotional reasoning,

demonstrated that such children were found to be poor in their ability to explain emotions associated with downward counterfactual thought-content(relief and contentment). The findings of this research are sufficient to document a negative correlation between downward counterfactual thought-processing and the degree to which the diagnosis of Autism is clinically significant.

An interesting relationship between counterfactual thinking and dissatisfaction has emerged from the research efforts of numerous researchers.

Summerville (2004),who in a study conducted to elicit a relationship between counterfactual seeking and levels of perceived dissatisfaction, found across a series of experiments that counterfactual seeking is generally able to reduce dissatisfaction by exposing individuals to the opportunity to gain insight about forgone, unfavorable outcomes. The results of this study are indicative of a negative correlation between counterfactual seeking and perceived levels of dissatisfaction.

While researching about dissatisfaction, Markman (1993), in a research study conducted to elicit a relation between downward counterfactual thinking and dissatisfaction, found that situational variables such as experience of a negative outcome that evoked upward counterfactuals, also led to greater levels of perceived dissatisfaction among individuals, as opposed to their counterparts who generated downward counterfactuals. These findings of this study are supportive of the existence of a negative correlation between dissatisfaction and downward counterfactual thinking.

Quite similarly, Sherman (1993) in a research conducted to elicit a relation between upward counterfactual thinking and perceived levels of satisfaction, found that individuals tended to be seriously affected by how their outcomes fared in comparison to their imagined, ideal ones. This research finding supports the existence of a negative correlation between upward counterfactual thinking and perceived levels of satisfaction to outcomes/results received.

Similarly, the domain of human learning is not an exception to the influencing impact of counterfactual thinking.

Petrocelli and Harris (2003), in a research study conducted to elicit the relationship between counterfactual thinking and learning inhibition, found that learning was less likely to occur when counterfactual salience was high, than when it was low. The finding of this research is sufficient to document the existence of a negative correlation between counterfactual thinking and learning.

Not far behind, Morris and Moore (2001) too, in a research study conducted to elicit a relationship between upward counterfactual thinking and learning, demonstrated that individuals in organizational settings were more

likely to learn from mistakes, when they responded to an undesirable outcome/event in a manner that comprised of upward-guided, self-referent counterfactual thoughts. The findings of this research study are sufficient to document a positive correlation between upward, self-referent counterfactual thinking and learning outcomes.

The domain of human personality too, reveals surprising associations between characteristic traits and counterfactual thinking.

Sirois and Monforton (1998), in a research study conducted to elicit the relationship between counterfactual thinking and perfectionism, demonstrated that maladaptive perfectionism standards came to be associated more with upward counterfactuals, recalling a negative event. The finding of this research is supportive of a positive correlation between upward counterfactual thinking and maladaptive standards of perfectionism.

Significant research work has been carried out exploring in detail, the commonalities between the phenomenon of counterfactual thinking and related social psychological constructs.

Taylor and Schneider (1989), in a research paper published as an article in a journal, elaborated on the relationship between counterfactual thinking , simulation and rumination wherein, counterfactual thinking came to be discussed as a subset of rumination i.e. as a mental construction having an immediate situational relevance. The contents of this research article highlight the commonalities underlying the psychological phenomenon of counterfactual thinking and rumination.

Similarly, Dunning and Parpal (1989), in a research article explored the inter-relatedness among three conceptualizations of counterfactual thinking, social judgment and victim compensation. Their research article highlights the impact of upward counterfactual thought content in negatively influencing social judgment, thereby affecting victim compensation in an adverse manner.

On a familiar note, Miller (1986), in a research study conducted to explore the role of social norms in the process of counterfactual activation, demonstrated that individuals who perceived a specific outcome as deviating greatly from social norms exhibited greater levels of counterfactual activation, when compared to participants who did not perceive the specific outcome to be socially inappropriate or deviant. The results of this study support the existence of a positive correlation between perceived social deviancy of outcome/event and counterfactual activation.

Extending the role played by social norms and standards in generating counterfactual thinking have been further explored by researchers.

Kahneman (1986), who in a research study conducted to compare and contrast the role of action and inaction in the process of counterfactual activation, found that when inaction was perceived to be as the norm in specific situations, then in those situations commission of actions were reported to generate greater counterfactuals. This research finding highlights the mediating role of perceived status-quo in the process of counterfactual activation.

The impact of counterfactual thinking on human affectivity has been well-established as a consequence of commendable research endeavors undertaken by psychologists and researchers.

Markman (1993), in a research study conducted to explore the affective function of counterfactual thinking, found that individuals who were induced to generate downward counterfactual thought content, reported pleasant and positive affect as compared to those individuals who were induced to generate upward, or no counterfactuals altogether. The findings of the aforementioned research are supportive of a positive correlation between downward counterfactual thinking and positive affectivity.

Researchers have conducted studies to explore the difference in the manner in which the different types of counterfactual thinking come to impact human behavior.

Roese (2016), in a research study conducted to compare and contrast upward and downward counterfactuals in terms of the frequency with which they are produced, demonstrated that when asked to report their thoughts following the experience of a recent unpleasant event, individuals responded by generating far greater number of upward counterfactuals as opposed to downward counterfactuals. The results of this study are indicative of the fact, that the frequency of production of upward counterfactuals exceeds those of downward counterfactuals.

Not far behind, Rim and Summerville (2005), in a research conducted to elicit the implications of psychological distance on the direction of counterfactual thinking, found that individuals tended to generate more downward counterfactuals about recent events and more upward counterfactuals in relation to distant, past events. This research finding is indicative of the fact, that with the progressively increasing psychological distance from an outcome in terms of space and time, individuals tend to shift from self-enhancement to self-improvement goals.

On a similar vein, Olson (1995) in a research study conducted to compare and contrast the rates of spontaneous production among upward and downward counterfactual thought-content, demonstrated that individuals tended to produce downward counterfactual thought-content spontaneously only rarely, as compared to the spontaneity with which they generated upward counterfactual thought-content. The findings of this research are indicative of the fact, that upwards counterfactuals are generated more spontaneously when compared to the rate of generation of downward counterfactuals.

Interesting results have been yielded from research undertakings aimed at discovering the implications of counterfactual thinking on the future behavioral intentions and thought-process in human beings. Malley (1995), in a research study conducted to explore the corrective functions of counterfactual constructions, found that counterfactual reconstructions of outcomes/situations/events indeed have a corrective role to play following unpleasant social experiences. The findings of this study highlight the merit of counterfactual reconstructions in paving a path for future improvements.

Simpson and Taylor (1989, 1998) too, in a research study conducted to explore the functional utility of counterfactual thinking, found that upward counterfactual thinking actually held tremendous potential for offering to its native useful prescriptions of efficacious future behavior. However, the same could not be said for downward counterfactual thinking. The results of this research study highlight the merit of upward counterfactuals in offering or suggesting prescriptions for efficacious future behavior.

On a similar note, Nasco and Marsh (1995), in a research, conducted to elicit a relation between upward counterfactual thinking and positive behavioral interventions among a sample of high-school students found, that generation of upward counterfactuals following performance feedback came to be associated with subsequent improvement in academic performance and positive behavioral intentions. The findings of this research study support the existence of a positive correlation between upward counterfactual thinking and positive behavioral intentions.

More recently, Epstude and Roeser (2008), in a research article, reviewed a wide array of diverse cognitive experiments that indicated the two-dimensional influence of counterfactual thinking and its functionality on mental health. Their research article highlights the merit of counterfactual thought content and their role in regulating behavior and improving performance.

Not too far behind, Landman (1995), in a research conducted to explore the implications of upward counterfactual thinking among a small sample of middle-aged women found, that greater the level of counterfactual thinking deployed, greater were the changes in career, relationships and lifestyles envisioned by the participants. The results of this study are sufficient to document a positive correlation between counterfactual thinking and envisaging changes in career, lifestyle and inter-personal relationships among middle-aged women.

Similar results have been obtained by Varey (1990), who in a research study conducted to elicit the relationship between frequency of counterfactual generation and outcome closeness, demonstrated that individuals who could have evaded an unpleasant event with much more ease as opposed to their counterparts, yet did not, generated a greater number of counterfactuals that undid the event as compared to their counterparts. The findings of this research study confirm the existence of a positive correlation between outcome closeness (with an avoidable notorious stimuli in place of a pleasant one) and counterfactual generation.

Researchers have left no stones unturned to map out the impact that counterfactual thinking may have on the manner in which human beings come to perceive the extent of their role in causing the outcomes that they experience in the world around them.

Gilbert and Holland (2000), in a research study conducted to elicit a relationship between counterfactual thinking, controllability and causal assignment, demonstrated across a series of three experiments, that even in the genuine absence of a malicious intent, individuals perceived to have pertinent knowledge about a potential outcome (and thereby more control over it), were perceived to be more causal of the event when compared to their ignorant counterparts. This research finding highlights the mediating role played by counterfactual thinking between causal assignment and perceptions of control.

On a similar vein, Mackie (1974), in a research study conducted to elicit a relationship between counterfactual thinking and causal ascriptions, found that individuals constructed counterfactual thought-content primarily to test and evaluate, whether a hypothesized cause is in fact a cause of the target effect. This research finding supports the existence of a positive correlation between causal ascriptions to undesirable consequences and counterfactual thinking.

In a similar attempt, Mandel and Lehman (1998), in a research study conducted to elicit a relationship between upward counterfactual thinking and preventability ascriptions, found that counterfactual thought-content and preventability ascriptions primarily focused on the controllable antecedents of an undesirable consequence/outcome. This research finding indicates towards the existence of a positive correlation between upward counterfactual thinking and preventability ascriptions.

While studying perceived intervening ability, Ellard (1996), conducted a research study to elicit a relation between counterfactual thinking and scope of perceived personal intervention in a situation. He demonstrated that generation of downward counterfactuals as opposed to upward counterfactuals came to be associated with a diminished sense of personal intervening ability in the event. Results of this research study are sufficient to document the existence of a negative correlation between generation of downward counterfactuals and perceived personal intervening ability in a situation.

Similarly, McMullen (1995) in a research study conducted to elicit a relation between counterfactual thinking and perceived control over an event, found that production of upward counterfactuals as opposed to downward counterfactuals, came to be associated with a greater perceived control over the unpleasant event and boosted levels of confidence as well. The findings of this research are indicative of a positive correlation between upward counterfactuals and heightened perceived control over the event.

The potential influence of counterfactual thinking on the process through which individuals appropriate and thereby give meaning to the world around them, has also been well-researched.

While studying the implications of subjective construes, James (1892) in a research study conducted to elicit a relationship between downward counterfactual thinking and positive subjective construes, demonstrated that an individual's objective accomplishments usually matter less to the manner in how those objective accomplishments come to be subjectively construed by the individual. This research study supports the existence of a positive correlation between positive subjective construes and downward counterfactual thinking.

On speaking of social biases, Olson (1996), in a research study conducted to elicit a relation between counterfactual thinking and hind-sight bias found, that generating counterfactuals lead to conclusions explaining how an outcome came about as it did, in turn gradually developing conviction or certainty. The findings of this research support the existence of a positive correlation between counterfactual thinking and hind-sight bias.

Research work conducted throughout the decades have found important evidences connecting the phenomenon of counterfactual thinking on a plethora of negative emotions experienced in human-beings.

Markman (1993), in a research study conducted to elicit a relationship between upward counterfactual thinking and negative appraisals, demonstrated the potential of downward counterfactual thought content to improve on reality and/or mentally restore negative outcomes to more positive or neutral emotional states. This research finding is sufficient to document a positive correlation between upward counterfactual thinking and negative outcome/event appraisals.

While researching on the experience of grief in human-beings, Davis (1995) in a research study conducted to elicit a relationship between counterfactual activation and experience of grief, found that greater the intensity of grief reported by individuals immediately after the experience of an unpleasant event, greater was the frequency of the generation of counterfactuals that 'undid' the event (upward counterfactual thinking). The findings of this research are supportive of the existence of a positive correlation between intensity of grief experienced and upward counterfactual activation.

Similarly, Whittier (1898), in a research conducted to explore the relationship between counterfactual thinking and negative emotional consequences, found that individuals who dwelt more on their counterfactual versions of the past, experienced more emotions of despair and a sense of excruciating loss. The findings of this research are sufficient to document the existence of a positive correlation between counterfactual thinking and intensity of despair experienced.

Near identical results have been obtained by Wortman and Silver (1995), who in a research study conducted to elicit a relationship between upward counterfactual thinking and experiencing negative/unpleasant feelings, found

that greater the upward counterfactual thought content produced by an individual, greater the unpleasantness and negativity the individual reported to be experiencing. The results of this research study are supportive of a positive correlation between generation of upward counterfactuals and experience of negative emotions.

Goodman (1947) too, in a research conducted to elicit pertinent information about the implications of counterfactual thinking on the thinking and feeling aspects of individuals, found that diverse experiences of negative emotions were often a result of counterfactual thinking. The findings of this research study provide us with a valuable piece of literary text that contradicts the 'beneficial' overview of counterfactual literature.

While studying the experience of guilt in human beings, Tangney (1994) in a research study conducted to elicit a relation between self-referent counterfactual thinking and experience of guilt found, that individuals who attributed encounter with a notorious stimuli to one's own behavior, reported experiencing high levels of guilt as opposed to their counterparts, who did not make any such attributions. The results of this study support the existence of a positive correlation between upward, self-referent counterfactuals and experience of guilt.

Taking a step further, Meyers (1992) in a research study conducted to explore the role of negative affective states as determinants of counterfactual activation, found that individuals who reported experiencing in greater frequency and intensity, negative affective states such as depressive affect, anger and unhappiness, also exhibited greater counterfactual activation. The results of this study highlight the merit of negative affective states as important determinants in the process of counterfactual activation.

On a similar vein, Miller (1986) in a research conducted to elicit a relation between counterfactual thinking and intensity of emotional reactivity, found that an individual's reaction to factual events appeared to be directly in proportion to the degree of effortlessness with which it was possible to conjure up greater (upward counterfactual thinking) and lesser (downward counterfactual thinking) outcomes. This research finding indicates the existence of a positive correlation between counterfactual thinking and the degree of effortlessness required to conjure up alternatives to the factual outcome.

While exploring the experience of shame in human beings, Niedenthal and Gavanski (1994) in a research study conducted to elicit a relation between self-referent counterfactual thinking and experience of shame, demonstrated that participants who attributed encounter with an unpleasant event to characteristic aspects of the self, reported experiencing higher levels of shame as opposed to their counterparts who did not make any such attributions. The results of this study support the existence of a positive correlation between self-referent counterfactuals and experience of shame.

Interesting results have been obtained from the efforts of Markman (1993), who in a research study conducted to elicit a relation between downward counterfactual thinking and dissatisfaction, found that situational variables such as experience of a negative outcome that evoked upward counterfactuals, also led to greater levels of perceived dissatisfaction among individuals, as opposed to their counterparts who generated downward

counterfactuals. These findings of this study are supportive of the existence of a negative correlation between dissatisfaction and downward counterfactual thinking.

While speaking about errors in cognition, Miller and Taylor (1995), in a research study conducted to elicit a relation between counterfactual activation and superstition, found that individuals who were highly superstitious, displayed corresponding levels of counterfactual activation, as opposed to their less superstitious counterparts. The results of this study support the existence of a positive correlation between superstition and counterfactual activation.

Advanced research endeavors undertaken to study in greater depth how the outcome variables may act as determinants to influence the nature and extent of counterfactual activation, have yielded intriguing results.

Levy (1992), in a research study conducted to elicit a relation between counterfactual activation and antecedent normality, demonstrated that individuals who reported greater levels of perceived antecedent normality, displayed drastically lowered levels of counterfactual activation, as opposed to individuals who reported lesser levels of perceived antecedent normality. The findings of this research are sufficient to document the existence of a negative correlation between perceived antecedent normality and counterfactual activation.

In exploring counterfactual activation, McMullen (In Press), conducted a research study to elicit a relation between downward counterfactuals and narrowly escaped negative outcomes. He found that although activation of downward counterfactuals may be rare, a narrow escape from an unpleasant outcome proved to be an condition that evoked them with a high level of certainty. The results of this study are indicative of a positive correlation between downward counterfactual activation and degree of narrowness with which an unpleasant outcome is avoided.

While speaking about near-misses, Tversky (1982), in a research study conducted to elicit a relation between counterfactual activation and outcome closeness in terms of numerical/sequential proximity, found that individuals who could have avoided an unpleasant/notorious stimuli in terms of greater numerical/sequential proximity in exchange with a pleasant stimuli, exhibited greater counterfactual activation as opposed to their counterparts. The results of this study are indicative of the existence of a negative correlation between counterfactual thinking and outcome closeness with a missed pleasant stimuli in terms of numerical/sequential proximity.

On a similar vein, Kahneman (1990) in a research study conducted to elicit the relationship between counterfactual activation and outcome closeness in terms of physical/distal proximity, found that individuals who could have avoided an unpleasant stimuli for a pleasant one by much lesser physical proximity when compared to their counterparts, reported much higher counterfactual activation as opposed to their counterparts. The result of

this study support the existence of a negative correlation between counterfactual activation and outcome closeness with a missed pleasant stimuli in terms of physical/distal proximity.

Near identical results were obtained by Roese (1990), who in a research study conducted to elicit a relation between counterfactual activation and outcome closeness in terms of temporal proximity, demonstrated that individuals who could have avoided encounter with a notorious stimuli with much lesser temporal proximity with a pleasant one, reported much higher counterfactual activation as opposed to their counterparts who did not experience such closeness in terms of time. The results of this study are indicative of a negative correlation between counterfactual activation and outcome closeness with a missed pleasant stimuli in terms of temporal proximity.

While studying individual's involvement with events and outcomes, Maheswaran (1992) conducted a research study to elicit a relation between counterfactual activation and degree of involvement with the outcome, found that individuals who exhibited a deeper involvement with a particular outcome, also exhibited elevated levels of counterfactual activation as opposed to individuals who were not as deeply involved with a particular outcome/situation. This research finding supports the existence of a positive correlation between the degree of involvement with an outcome and counterfactual activation.

On speaking of outcome-constancy, Tversky (1982) in a research conducted to elicit a relationship between counterfactual thinking and outcome- constancy, found that individuals tended to generate a greater amount of counterfactual alternatives in situations where an undesirable outcome could be more easily avoided. This research finding highlights the fact that counterfactual thinking is not contingent to outcome-constancy.

While studying the implications of experiencing an outcome deviant from one's original expectations, Atkinson and Feather (1964) in a study conducted to elicit a relationship between counterfactual thinking and the extent of deviation of an outcome from one's original expectations, found that the participant's levels of satisfaction with an outcome came to be contingent to how it compared with the individual's original expectations. This research finding indicates towards the existence of a positive correlation between counterfactual thinking and the extent of outcome deviation from an individual's original expectations.

On a similar note, Olson and Zanna (1986) in a research conducted to elicit a relationship between counterfactual thinking and the degree of perceived difference between actual and imagined consequences, demonstrated that individuals who perceived a greater difference between the imagined and actual consequences, generated greater number of counterfactual alternatives for their present circumstances. This research finding is indicative of a positive correlation between the degree of perceived difference between actual and imagined consequences and counterfactual thinking.

On speaking of outcome similarity, Johnson (1986) in a study conducted to elicit a relationship between counterfactual thinking and outcome similarity, discovered the role played by ease of generation of diverse

counterfactual alternatives in making individuals produce contrasting reactions to similar situations. This research finding highlights the mediatory role played by ease of generation between counterfactual thinking and reactivity towards similar outcomes.

Linking counterfactual thinking with cognition, Boninger and Gleicher (1994), in a research study conducted to elicit a relationship between counterfactual thinking and cognitive reactivity, demonstrated that when compared to neutral or positive events/consequences, negative events tended to evoke and subsequently elicit more counterfactual thinking in terms of cognitive reactivity. This research finding is indicative of a positive correlation between counterfactual thought content and degree of perceived negativity of an outcome/event.

Revealing the indispensable role of the nature of the outcome experienced in determining the nature of counterfactual thought-content being generated, Sherif and Hovland (1961) in a research study conducted to explore the effect of contrast effect on counterfactual activation, found that individuals who experienced contrasting outcomes in succession, reported generating counterfactuals of a nature more extreme than participants who were not primed with the contrast effect. The findings of this research highlight the merit of contrast effect in determining the nature of counterfactual content being generated.

DISCUSSION

Meta-analysis of previous researches and review of pertinent literature, posit a significant positive correlation of downward counterfactual thinking with happiness, levels of satisfaction, religiosity and positive affectivity.

Additionally, a negative correlation has been observed between downward counterfactual thinking and negative subjective construes.

A significant positive correlation of upward counterfactual thinking with learning outcomes, belief in free-will, maladaptive standards of perfectionism, negative affectivity, prescriptions for efficacious future behavior, intensity of bereavement experienced, experience of guilt, positive behavioral intentions for future, perceived self-control over prevailing circumstances and negative appraisal of outcomes/events has also been observed during this meta-analytical review of past research literature.

Additionally, this present review of past literature, establishes a positive correlation between counterfactual thinking and a large array of positive and social psychological variables such as extent of outcome deviation, perceived levels of satisfaction, preventability ascriptions, behavioral regulation, performance improvement (academic), experience of despair, degree of involvement with the outcome/event, perceived social deviancy of an

outcome/event, superstition as a personality disposition, hindsight bias, anticipation of future changes in domains of career, lifestyle, interpersonal relationships and social comparison

Conversely, this meta-analysis of pertinent research literature also reveals the existence of a negative correlation between counterfactual thinking and a host of related positive and social psychological constructs such as perceived antecedent normality, unaccomplished outcome closeness (in terms of temporal and distal proximity), learning, perceived levels of dissatisfaction and social status.

Finally, this meta-analytical discourse posits no significant relationship between counterfactual temptation and downward social comparison. This present review of literature also reveals no significant correlation between counterfactual thinking and outcome constancy.

CONCLUSION

This treatise attempted to analyze, formally and systematically , and study in greater depth the conceptualization of counterfactual thinking as a construct in social psychology.

This written discourse also sought to investigate into the types, the principles underlying counterfactual thinking and explore in greater depth the relationship shared by counterfactual thinking with a plethora of related positive psychological constructs.

Thus, as substantiated above, the dynamics of counterfactual thinking undoubtedly influence diverse aspects and correlated of the state of human well-being

FUTURE DIRECTIONS FOR FURTHER RESEARCH

Further research carried out in this direction in the future may choose to concern itself with studying the development of the counterfactual thought process in humans across the lifespan.

Since, the brain evolves structurally and functionally throughout the lifespan, the exact nature of the generated counterfactuals may also differ from one another, depending upon the specific developmental age a particular individual is currently in.

Another direction which warrants further research and that also in great depth, points towards the concern of developing more tools and instruments to assess both the aforementioned psychological constructs. At present, the Counterfactual thinking for Negative Events Scale (CTNES, Cahoon et al , 2008) is the only published psychological tool which seeks to assess counterfactual thinking in human beings. The need for the development of more comprehensive psychological tools to assess gratitude in human beings also seems to be warranted.

As both the constructs, downward counterfactual thinking from the sub-branch of social psychology and gratitude from the sub-branch of positive psychology appear to be contributing factors towards the development of positive psychological constructs such as positive affectivity, religiosity, enhanced levels of performance, behavioral regulation, self-improvement and enhancement, satisfaction, prescriptions for efficacious future behavior and an overall sense of positivity; future investigations should aim at exploring their relationship as well as their roles in depth, for the overall enhancement of positivity and quality of life.

Thereafter, based on the findings and results of such comprehensive, credible, in-depth and carefully-planned research undertakings, interventions may be planned to alleviate distress from the lives of distressed people and to infuse with vigor, greater positivity in the lives of already happy people.

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REFERENCES

Alquist J., Ainsworth S., Baumeister R., Daly M., Stillman T. (2015). The Making of Might-Have-Beens: Effects of Free Will Belief on Counterfactual Thinking. Retrieved from *Personality and Social Psychology* : <https://www.ncbi.nlm.nih.gov/pubmed/25511569>.

Baron. A, Branscombe ., Byrne D., Bhardwaj G. (2013). *Social Psychology*. India : Dorling Kindersley Press.
Baron R.(2000). *Counterfactual thinking and venture formation: The potential effects of thinking about “what might have been”*. Retrieved from *Journal Of Business Venturing* : <https://www.researchgate.net/.../55dcc26f08ae3ab722b1a5f5>.

Buffone A., Gabriel S., Poulin M. (2016). There But for the Grace of God: Counterfactuals Influence Religious Belief and Images of the Divine. Retrieved from *Social, Psychological and Personality Science* : <http://spp.sagepub.com/content/7/3/256.abstract>.

Begeer S., Rosnay M., Lunenburg P., Stegge H., Terwogt M.(2014). *Understanding of emotions based on counterfactual reasoning in children with autism spectrum disorders*. Retrieved from Sage Journals : <http://repositorio.ispa.pt/bitstream/1400.12/3869/1/TES%20RASG%201.pdf>.

Chang E., Meier S.(2001). Counterfactual Thinking and Self-Motives. Retrieved from *Personality and Social Psychology Bulletin* : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2408534/>.

Emmons, R. A., & Crumpler, C. A. (2000). *Gratitude as a human strength: Appraising the evidence*. Retrieved from *Journal of Social and Clinical Psychology* : <http://guilfordjournals.com/doi/abs/10.1521/jscp.2000.19.1.56>.

Emmons, R. A., & McCullough, M. E. (2003). *Counting blessings versus burdens: An experimental investigation of gratitude and subjective well-being in daily life*. Retrieved from *Journal of Personality and Social Psychology* : <https://www.ncbi.nlm.nih.gov/pubmed/12585811>.

Epstude K., Jonas K.Regret (2012). *Counterfactual Thinking in the Face of Inevitability*. Retrieved from *Social Psychological and Personality Science* : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2717727/>.

Fuschia M. & Sirois (2004). *Procrastination and counterfactual thinking: Avoiding what might have been*. Retrieved from *Personality and Social Psychology Bulletin* : <https://www.psychologytoday.com/blog/dont-delay/200806/avoiding-what-might-have-been>.

Galinsky A.(2002). The Dissatisfaction of Having Your First Offer Accepted: The Role of Counterfactual Thinking in Negotiations. *Personality and Social Psychology Bulletin*.. (28): 271-283.

Gilbert E., Tenney E., Holland C., Spellman B.(2015) Counterfactuals, Control, and Causation: Why Knowledgeable People Get Blamed More. Retrieved from *Personality and Social Psychology* : <http://psp.sagepub.com/content/41/5.author-index>.

- Giroto V., Legrenzi P. and Rizzo A. (1991). *Event Controllability in Counterfactual Thinking*. Retrieved from Acta Psychologica: <http://link.springer.com/article/10.3758/BF03209355>.
- Gleicher F., Kost K., Baker S., Richman S. (1990). *The Role of Counterfactual Thinking in Judgments of Affect*. Retrieved from Personality and Social Psychology Bulletin : <http://psp.sagepub.com/content/21/2/109.abstract>.
- Harris P., German T., Mills P. (1996). *Children's use of counterfactual thinking in causal reasoning*. Retrieved from Cognition : <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3582172/>.
- Hoeck N., Ma N., Ampe L., Baetens K., Overwalle F. (2013). *Counterfactual thinking: An FMRI Study on Changing the Past for a Better Future*. Retrieved from *Social and Cognitive Affective Neuroscience* : <https://www.ncbi.nlm.nih.gov/pubmed/22403155>.
- Mandel, David R., Lehman, Darrin R. (1996). *Counterfactual thinking and ascriptions of cause and preventability*. Retrieved from Journal of Personality and Social Psychology : https://scholar.google.com/citations?view_op=view_citation&hl=zh-CN&user=PYbH6YkAAAAJ&citation_for_view=PYbH6YkAAAAJ:UebtZRa9Y70C.
- Nasco S. (1999). *Gaining Control through Counterfactual Thinking*. Retrieved from Personality and Social Psychology Bulletin : https://www.researchgate.net/publication/235701714_General_Attainability_Beliefs_Moderate_the_Motivational_Effects_of_Counterfactual_Thinking.
- Olson J. (1995). *Outcome Controllability and Counterfactual Thinking*. Retrieved from Personality and Social Psychology Bulletin : <https://www.scholars.northwestern.edu/en/publications/outcome-controllability-and-counterfactual-thinking>.
- Petrocelli J., Harris A (2011). *Learning Inhibition in the Monty Hall Problem: The Role of Dysfunctional Counterfactual Prescriptions*. Retrieved from Personality and Social Psychology Bulletin : https://www.researchgate.net/publication/51159677_Learning_Inhibition_in_the_Monty_Hall_Problem_The_Role_of_Dysfunctional_Counterfactual_Prescriptions.

Roese, Neal J. (1997). *Counterfactual thinking*. Retrieved from Psychological Bulletin : <https://www.researchgate.net/publication/255571704> The Psychology of Counterfactual Thinking.

Roese, Neal J. (1994). *The functional Basis of Counterfactual Thinking*. Retrieved from Journal of Personality and Social Psychology : <https://www.researchgate.net/publication/278933072>.

Roese N. (1997). *Perceptions of Purple: Counterfactual and Hindsight Judgments*. Retrieved from Personality and Social Psychology Bulletin. : <https://www.researchgate.net/publication/247839077>.

Rim S. and Summerville A. (2014). How Far to the Road Not Taken? The Effect of Psychological Distance on Counterfactual Direction. Retrieved from *Personality and Social Psychology Bulletin* : <https://www.ncbi.nlm.nih.gov/pubmed/21734163>.

Sanna L.(1996). *Antecedents to Spontaneous Counterfactual Thinking: Effects of Expectancy Violation and Outcome Valence*. Retrieved from *Personality Social Psychological Bulletin* : <http://psp.sagepub.com/content/27/8/1023.abstract>.

Sirois F.(2010). Perfectionism and the Functionality of Counterfactual Thinking. Retrieved from *Personality and Social Psychology Bulletin* : <http://psp.sagepub.com/content/36/12/1675.abstract>.

Summerville A.(2011). Counterfactual Seeking: The Scenic Overlook of the Road Not Taken. Retrieved from Personality and Social Psychology Bulletin. : <http://psp.sagepub.com/content/37/11/1522.abstract>.

Victoria H., Madey, Medvick , Scott F., Gilovich T.(1995). *Counterfactual thinking and satisfaction among Olympic medalists*. Retrieved from Journal of Personality and Social Psychology : <https://www.ncbi.nlm.nih.gov/pubmed/7473022>.