



Counterfactual thoughts in prolonged grief:
A phenomenological analysis

Nynke de Boer

Master Thesis – Klinische Psychologie

S4587073
March 2023
Department of Psychology
University of Groningen
Examiner/Daily supervisor:
M. Eisma

A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.

Abstract

Losing a loved one could lead to persistent grief or development of a prolonged grief disorder (PGD). Gaining knowledge on changeable processes present in psychological outcomes of bereavement, could help improve treatments for prolonged grief. One such process concerns counterfactual thoughts (“what-if”-thoughts), which represent how negative outcomes could have been avoided. This study is one of the first studies exploring counterfactual thoughts in PGD and aims to describe the validity, actor, subject, and direction of a self-generated counterfactual thought by people with probable PGD versus people without PGD. We specifically expected that people with probable PGD (vs. without) experience more self-referent, upward counterfactual thoughts related to the cause of the loss. Generation and analysis of data ($N = 218$, adult men and women that lost a loved one) led to a description of counterfactual thoughts between the probable-PGD ($n = 70$) and non-PGD group ($n = 148$). Main findings represent more cause of loss-related counterfactual thoughts in the probable PGD-group and more general loss-related counterfactual thoughts in the non-PGD group. Probable-PGD participants do not experience more self-referent upward counterfactual thoughts related to the cause of the loss. The validity, actor and direction also do not differ between the groups. Despite limitations (e.g., limited power) this study provides insight in the nature of counterfactual thoughts generated by people with probable PGD (vs. without PGD). Findings from this study may be used as targets in treatments for prolonged grief, so that these treatments may lead to more clinically relevant improvement in patients.

Keywords: counterfactual thoughts, bereavement, prolonged grief disorder

Counterfactual thoughts in prolonged grief: A phenomenological analysis

The death of a loved one is a common but stressful life event. After losing someone, people may go through various and different grief experiences (Bonanno & Kaltman, 2001).. Many people experience little disruption in functioning; others experience initial distress that subsides in the first few months after the loss (Boelen & Lenferink, 2019). However, there is a significant minority of people who become “stuck” in a state of chronic grief (Prigerson et al., 2021). For these people, grief may persist for years and can become dysfunctional, distressing or even dangerous, putting the bereaved person at a significant risk of self-harm.

Recently, such severe, persistent grief, termed prolonged grief, has been added to the International Classification of Diseases 11 (ICD-11; World Health Organization, 2019) and Diagnostic and Statistical Model of Mental Disorders 5 text revision (DSM-5-TR; American Psychiatric Association, 2022) in the form of prolonged grief disorder (PGD). Across both conceptualizations, PGD is characterized by symptoms such as longing for the deceased, intense sorrow and emotional pain, preoccupation with the deceased, experiencing disbelief and emotional numbness over the loss (Eisma et al., 2022b). Besides similarities between the diagnoses of PGD per DSM-5-TR and ICD-11, there are also differences between both versions. For example, the ICD-11 includes the symptoms difficulty accepting death and inability to experience positive mood as additional criteria, whereas the DSM-5 includes disbelief about the death, feeling life is meaningless and intense loneliness (Eisma et al., 2022b). Another difference is the time criterion, which is 6 months post-loss per ICD-11 and 12 months post-loss per DSM-5-TR (Prigerson et al., 2021). According to several studies, prolonged grief is often comorbid with anxiety, depression, and PTSD (Boelen & Prigerson, 2007; Kersting et al., 2007; Szuhany et al., 2021) and has been associated with sleep disturbance, suicidality, poor health behaviours, cardiovascular and cancer conditions, and work and social impairment (Bryant et al., 2014).

There are effective treatments available to treat prolonged grief symptoms (Boelen et al., 2007; Bryant et al., 2017; Rosner et al., 2014; Shear et al., 2005), but these treatments show clinically relevant improvement in no more than fifty percent of all patients (for a review: Doering & Eisma, 2016). Knowledge on changeable determinants of psychological outcomes of bereavement may help improve treatments for prolonged grief (Eisma et al., 2022a). One important malleable determinant is rumination, which is the process of thinking recurrently/repetitively about the causes and consequences of negative events (Eisma & Stroebe, 2017) which has been identified as a risk factor in adjustment to bereavement (Eisma et al., 2022a).

Rumination includes counterfactual thoughts, which are thoughts concerned with how a negative outcome could have been avoided (Davis et al., 1995) or, put differently, thoughts of what might have been (Epstude & Roese, 2008). In general, counterfactual thoughts represent reflections such as: “If only... then...” (Eisma et al., 2021). One of the earliest theoretical traditions to explain counterfactual thinking was the norm theory (Epstude & Roese, 2008). This theory described counterfactual thinking as a form of biased judgement and decision making. From a functional perspective, counterfactual thinking may be seen primarily as useful, beneficial, and necessary component of behaviour regulation. According to this functional theory, counterfactual thoughts that effortlessly spring to mind on a daily basis are, for the most, reflections of goals (Roese & Epstude, 2017). Counterfactual thoughts may impact behaviour in relation to specific problem or event at hand. A counterfactual thought can be functional, for example in a way that the thought reminds the person how to act (differently) in the future to avoid the recurrence of a negative life-event.

There are different types of counterfactual thoughts, like upward counterfactual thoughts or downward counterfactual thoughts. Upward counterfactual thoughts are mental simulations about how a situation could have been turned out better and have been studied

most in bereaved people (Davis et al., 1995; Eisma et al., 2015). Upward counterfactual thoughts are deemed to serve a preparative function (Kennedy et al., 2020), which means that individuals learn from past situations and adjust their behaviour in the future (Eisma et al., 2021). A general example of an upward counterfactual thought: “If I started studying four days ago instead of last night, I could have done better on the test.” An effect of upward counterfactual thoughts is that these thoughts might hinder people from engaging in their in the here and now, especially when coping with traumatic events (e.g. losing a loved one) (Kennedy et al., 2020). Downward counterfactual thoughts are mental simulations about how a situation could have turned out worse and have only recently been the focus of research among bereaved samples. Downward counterfactual thoughts are widely recognized to serve an affective or self-enhancement function (Kennedy et al., 2020), which means that individuals reflect on how the past unfolded and how they or other people contributed to it (Eisma et al., 2021). Downward counterfactual thoughts often take the form of “at least...” statements (Markman et al., 1993). A general example of a downward counterfactual thought could be, “Even though I received only a 6 on the exam, at least I did not fail.” An effect of downward counterfactual thoughts is the mitigation of feelings of loss of meaning, perceptions of lack of control and/or threats of self-esteem, which gives these thoughts a coping function (White & Lehman, 2005).

Counterfactual thoughts can refer to (in)actions of the bereaved person (self-referent), others (other-referent), or no one specifically (non-referent) (Eisma et al., 2021). The effects of counterfactual thoughts may differ depending on their focus and to whom the thoughts refer. For example, recurrently thinking about what oneself could have done to prevent the loss, reflects an internal attribution of responsibility for the loss and this could be related to feelings of worthlessness and psychological distress (Greene, 2018). Recurrently thinking about what others could have done to prevent the loss, reflects an external attribution of

responsibility for the event and could serve a self-protective function, which reduces the need to make negative internal attributions (Greene, 2018). In recurrent thoughts about what no one in particular (or nothing specific) could have done to prevent the loss, there is no specific target. These type of thoughts reflect more global attributions (Rye et al., 2008) and simply describe how the loss could have turned out differently (Eisma et al., 2021).

Upward self-referent counterfactual thoughts related to the cause of the loss predict more severe prolonged grief symptoms longitudinally (Eisma et al., 2021). These thoughts represent different ways to prevent the cause of the loss by doing something different yourself (as the bereaved person). An example could be: 'If I had pressed the doctors more, then he might still be alive'. Upward self-referent counterfactual thoughts may also strengthen self-blame, which have been shown to be associated with prolonged grief reactions (Boelen & Lensvelt-Mulders, 2005). Conversely, non-referent downward counterfactual thoughts are negatively associated with prolonged grief symptoms and may help recognizing positive outcomes of the loss, which in turn may facilitate meaning making (Eisma et al., 2021; Kennedy et al., 2020; Kray et al., 2010) a process that is presumed critical in adaptation to loss (Neimeyer et al., 2010).

Despite the fact that upward counterfactual thoughts are the most common form of counterfactual thinking (Roese & Olson, 1997) and the content of these thoughts is often about peoples own behaviour following loss (Dalglish, 2004; Davis et al., 1995), it has not yet been systematically charted what kind of specific counterfactual thoughts bereaved people spontaneously generate. It is also not yet discovered whether these thoughts are actually related to the cause of the loss (the loss-event) or to other events and if the nature of these thoughts differ between people with and without prolonged grief.

By clarifying the characteristics of counterfactual thoughts, we could gain more insight in the relevance and contribution of these characteristics in counterfactual thoughts

that people generate. These insights could be implemented in the current treatments for prolonged grief, as it is known that counterfactual thoughts could be positively or negatively associated with prolonged grief. The effects of the thoughts may provide insight into which type of counterfactual thought one should specifically target. Within PGD-treatments, the nature of the experienced counterfactual thoughts could be addressed for example by cognitive restructuring (identifying, challenging and changing thoughts) or exposure therapy (confront and work through thoughts), as is also discussed in the study of Boelen et al. (2007). A better development of specific and detailed treatment for severe and prolonged grief, could in turn lead to greater clinically relevant improvement in patients that are treated for prolonged grief.

To better understand and describe what kind of counterfactual thoughts are being generated in prolonged versus non-prolonged grief, the aim of this phenomenological study is to explore the differences between the counterfactual thoughts generated by people with probable PGD and people without PGD. We will explore the number of upward (versus downward) counterfactual thoughts that participants generate, whether these are self, other or non-referent and whether they refer to the cause of the loss or other events.

Based on previous research we also formulate one specific hypothesis: we expect that people with probable PGD (vs. people without PGD) experience more self-referent upward counterfactual thoughts related to the cause of the loss (e.g. Eisma et al., 2021). Other differences will be explored without a-priori hypotheses.

Method

Procedure

Data for the current phenomenological study will be drawn from an existing longitudinal dataset about determinants of mental health outcomes following bereavement.

The longitudinal study was approved by the Ethical Committee Psychology of the University of Groningen (registration number: PSY-1819-S-0173).

Adults (≥ 18 years old), who experienced the death of a family member, partner, or friend were recruited through Google AdWords and other online advertisements and linked to a Qualtrics questionnaire. Participants received information about the goal of the research, the procedure, possible advantages and disadvantages, confidentiality and participating, via the website www.onderzoekrouw.nl. If participants were interested, they could provide online informed consent and proceed to a questionnaire. This questionnaire could be completed via PC, tablet, or smartphone and took about half an hour to complete. The topics of the questionnaire were for example related to; rumination, grief reactions (symptoms), depression and counterfactual thoughts. At the end of the questionnaire participants were asked if they were interested in participating in two subsequent questionnaires. If participants indicated that they were interested, they were sent a link to an online questionnaire by email, at six (T2) and twelve (T3) months after completing the first survey.

At baseline, there were many participants that gave information regarding to their loss, like the time that has been passed since their loss. Some participants entered the study quite shortly after losing their loved one (e.g., loss happened one month before), but others participated quite a long time after their loss (e.g., loss was more than 6 years ago). The first twelve months after the loss are used as time criterium to determine PGD per DSM-5-TR (American Psychiatric Association, 2022). These months are considered to be the acute phase of grief. According to this time criterion, only measurements of T3 are relevant because on this measurement occasion all participants have lost their loved one at least twelve months prior to participating. By using this measurement occasion, it is possible to make a comparison between participants with probable PGD and participants without (and distinguish probable PGD from non-PGD).

Participants

The longitudinal dataset consisted of 987 participants. Of this sample, only 561 participants were interested in follow-up research (and gave permission to be contacted). Of the 561 participants, 378 participants completed the questionnaire on measurement occasion T3, and of this group 218 participants provided a description of a counterfactual thought (see measures section). Data of these 218 participants will be used for this study.

All participants are Dutch adults that lost a loved one, mainly through natural loss. The average time since the loss (on T3) is about 15 months and ranges from thirteen months to more than six years. To divide participants over the probable PGD-group and non-PGD group, a cut-off score of ≥ 71 was used for the scores on the grief reactions questions of the questionnaire. Of the 218 participants, 70 participants exceed the cut-off score and therefore belong to the probable PGD-group (versus 148 participants in the non-PGD group). Full sample characteristics are shown in Table 1.

Measures

While many measures were included in the larger survey, we only used information regarding counterfactual thoughts and prolonged grief symptoms. We will describe these measures here.

Counterfactual Thoughts

To measure counterfactual thoughts with the questionnaire, participants were given the following information: “The following questions are about “what if”-thoughts that often begin with “If I,” “If there” or “If they” and describe how a situation could have turned out better or worse. For example: “If I had studied more before my exam, then I would have passed” or (if it’s raining) “If I had not brought my umbrella, I would have gotten wet by now.” These are simple examples, but these kinds of thoughts also occur after major events. “Did you even have these thoughts related to the loss of your loved one?,” After this instruction, participants

could give a description of their thought(s) or choose the option: “No, I do not have these thoughts.”

Coding of Counterfactual Thoughts

From the descriptions of counterfactual thoughts, counterfactual characteristics were constructed and coded. All counterfactual thoughts and counterfactual characteristics have been coded and assessed twice by two students and one former student of the Rijksuniversiteit Groningen (M. Doornbos, N. de Boer and C. Brouwer), in IBM SPSS Statistics (version 28). To decide which codes were relevant a coding-manual was used (see Appendix A). For example, in regard to the validity of the counterfactual thoughts, an example of a valid counterfactual thought is: “If I had done the right thing, then there might not have been any complications.” A description like: “I miss him very much,” is an invalid counterfactual thought and a description like: “If I had listened to him...,” is a probable counterfactual thought, according to the manual.

Subsequent to the coding sessions a different session was scheduled to look at the similarities and discrepancies between the given codes (by the three students). These discrepancies have been discussed and codes have been adjusted where needed, to keep the existing dataset up to date and to ensure accurate handling of data. The following variables were coded from the entries by participants.

1. Is the given counterfactual thought a valid counterfactual (1: counterfactual thought, 2: probable counterfactual thought and 0: no counterfactual thought)
2. Which actor does the counterfactual thought refer to (1: self-referent, 2: other-referent, 1,2: self & other-referent and 3: non-referent)
3. Does the counterfactual thought describe an alternative better situation (1: upward counterfactual) or worse situation (2: downward counterfactual)

4. What is the subject of the counterfactual thought (1: loss-related, 2: cause of loss and 3: neither)

A fifth variable (see below) was also coded initially, but due to linguistic considerations (the code would depend on chosen sentence structure rather than objective differences between counterfactuals), this variable will not be included in the statistical analysis.

5. Which act is described with the counterfactual thought (1: something that has been done or 2: something that has not been done)

To provide a clear and consistent description of the four variables described above (also for the remaining chapters), each variable got a name (that is associated with the description of the variable). The names of the variables are, 1: ‘Validity of counterfactual thought’, 2: ‘Actor’, 3: ‘Direction’ and 4: ‘Subject’.

Prolonged Grief Symptoms

The existence of (probable) PGD per DSM-5-TR criteria will be assessed with the Traumatic Grief Inventory-Self Report Plus (TGI-SR+) (Lenferink et al., 2022). This scale is based on the Traumatic Grief Inventory-Self Report (TGI-SR) (Boelen & Smid, 2017). The TGI-SR+ consists of 22 items about grief reactions, which were included in the questionnaire. Included items can be used to match the symptoms of prolonged grief disorder as described in the DSM-5-TR and ICD-11 and persistent complex grief disorder as described in the DSM-5. Participants needed to indicate to what extent they experienced a symptom in the past month following the loss, on a 5-point Likert scale (ranging from 1 = never to 5 = always). An example item is: “I experienced intense feelings of emotional pain, sadness, or pangs of grief.” The TGI-SR+ is a reliable and valid self-report instrument to comprehensively assess symptoms of the DSM-5 PCBD, ICD-11 PGD and the DSM-5-TR PGD criteria sets (Lenferink et al., 2022). In line with the manual of the TGI-SR+, a cut-off score of ≥ 71 is used to distinguish probable PGD from non-PGD (Lenferink et al., 2022).

Statistical Analyses

Per coded variable (Validity of counterfactual thought, Actor, Direction, and Subject) a Cohen's Kappa coefficient will be calculated, to assess the degree of agreement between the codes (which are given and assessed twice by the three students). The Kappa coefficients and further statistical analysis of this study will be performed in IBM SPSS Statistics (version 28).

To examine whether the distributions of the counterfactual characteristics differ between the probable PGD and the non-PGD group, Chi-square tests will be performed (Moore & McCabe, 2017).

Prior to running the Chi-square tests, we checked the following assumptions: 1. Variables are categorical, 2. All observations are independent (no relationship between the subjects), 3. Cells in the contingency table are mutually exclusive (variables are not paired) and 4. Expected value of cells should be 5 or greater in at least 80% of the cells. The fourth assumption is very important because the chi-square distribution is sampling distribution of the X^2 statistic for relatively large sample sizes. When data of this study does not meet the fourth assumption, we planned to use Fisher's Exact Probability tests (Pallant, 2020). This results in only reported significance levels (*p*-values).

Results

Preliminary analyses

Inter-rater reliability

To assess the initial inter-rater reliability of the coded data, frequencies and Cohen's Kappa coefficients were calculated per coded variable (Validity of counterfactual thought, Actor, Direction, and Subject). The number of similarities and discrepancies, percentage of agreement, and the Kappa coefficients are shown in Table 2.

Assumption checks

In order to run Chi-square tests for each of the coded variable, the assumptions of the Chi-square test needed to be met. The variables of interest are counterfactual characteristics (i.e., the validity of counterfactual thought, actor, direction, subject, and the combination of self-referent upward and cause of loss-related counterfactual thoughts (vs. other)) and the existence of (probable) PGD (vs. not). All variables are categorical variables and therefore the first assumption is met. The second and third assumption, which state that all observations are independent and cells in the contingency table are mutually exclusive, are met because the participants participate independently of each other and the variable categories are exclusive (when a participant generates an upward counterfactual thought, he does not also generate a downward counterfactual thought). The final assumption, which states that the expected value of cells should be greater than 5, is not met on two counterfactual characteristics, namely “Direction,” since there are only four registered ‘downward counterfactual thoughts’ and on “Actor” since there are only two registered ‘self & other counterfactual thoughts’. The counterfactuals characteristics: “Validity of counterfactual thought” and “Subject” do meet the final assumption. For the variables that do not meet the final assumption, the Fisher Exact Probability Test will be used.

Main statistical analyses

Of the 218 counterfactual thoughts that were given on T3, 134 (62%) counterfactual thoughts were valid, 31 (14%) counterfactual thoughts were probably valid counterfactual thoughts and 53 (24%) were invalid counterfactual thoughts according to the raters, based on the manual (See Appendix A). For the statistical analyses, both valid counterfactual thoughts and probable counterfactual thoughts will be considered as valid counterfactual thoughts. Because the 53 invalid counterfactual thoughts are not included as valid counterfactual thoughts, this means that there are 165 counterfactual thoughts coded for the variables

‘Actor’, ‘Direction’ and ‘Subject’ (see Table 3). Therefore, the sample size decreases from 218 to 165. To investigate whether there is a difference in counterfactual characteristics between the groups; frequencies were calculated first (see Table 3).

With regard to the expectation that people with probable PGD experience more self-referent, upward counterfactual related to the cause of the loss, this combination of counterfactual characteristics was also investigated in SPSS. For this combination, the counterfactual thoughts with the characteristic of ‘self-referent’, ‘upward’ and ‘cause of loss-relatedness’ nature have been compared to all other variable characteristic combinations that do not match this combination of interest (in SPSS: dummy code 1; self-referent upward and cause of loss-related and 0; all other combinations). Differences of this variable combination between the groups can also be found in Table 3.

Chi-square test results

In comparing the valid and probable counterfactual thoughts to the invalid counterfactual thoughts, the Chi-square test of “Validity of counterfactual thought” indicates no difference in the distribution of this variable between the probable PGD-group and the non-PGD group, $\chi^2(1, N = 218) = .12, p = .731$, Cramer’s V: 0.02. In comparing the four categories of ‘Actor’, the Fisher Exact Probability test of “Actor”, indicates no difference in the distribution of this variable between the probable-PGD and the non-PGD group, with $p = .417$, Cramer’s V: 0.12. In comparing the upward and downward counterfactual thoughts, the Fisher Exact Probability test of “Direction” also indicates no difference in the distribution of this variable between the probable-PGD and the non-PGD group, with $p = .304$, Cramer’s V: 0.11. In comparing the three categories of ‘Subject’, the Chi-square test of “Subject” shows a significant difference in the distribution of this variable between the probable-PGD group and the non-PGD group, $\chi^2(2, N = 165) = 8.68, p < .013$, Cramer’s V: 0.23. In comparing the combination variable of ‘self-referent upward and cause of loss-related’ counterfactual

thoughts to all other counterfactual characteristic combinations, the Chi-square test of “Self-referent upward and cause of loss-related counterfactual thoughts” indicates no difference in the distribution of this variable between the probable-PGD group and the non-PGD group, $\chi^2(1, N=165) = 2.20, p = .138$, Cramer’s V: 0.12.

Follow-up analyses

In order to see which categories of the variable ‘Subject’ actually differ from each other, a follow-up analysis was performed. By performing a follow-up Chi-square test, the specific categories are compared to each other to identify differences that may be significant. In order to not lose any power, the categories of ‘Subject’ are compared in the following order, the category ‘loss-related versus other’, ‘cause of loss versus other’, and ‘neither versus other’. The only significant result that emerges is “Cause versus other”, where probable-PGD participants generate more counterfactual thoughts related to the cause of the loss. See Table 4 for the results of this follow-up analysis.

Discussion

The aim of this present phenomenological study was to gain a better understanding of the characteristics of counterfactual thoughts that are generated by people suffering from prolonged grief symptoms compared to people showing normal grief responses. Therefore, differences between counterfactual thoughts that are generated by people with probable PGD and people without PGD were explored. Subsequently, the experienced upward (versus downward) counterfactual thoughts that participants generate, whether these are self, other, or non-referent and whether the thoughts refer to the loss, the cause of the loss or other events were investigated. It was specifically expected that people with probable PGD experienced more self-referent, upward counterfactual thoughts related to the cause of the loss than people without PGD.

Before discussing the main findings, it is useful to observe that the inter-rater reliabilities were high (95-98%), showing that we could meaningfully label specific types of counterfactual thoughts, by using this coding method. From the main findings it can be concluded that the probable-PGD participants generate more counterfactual thoughts related to the cause of the loss (than related to other events), and the non-PGD participants more counterfactual thoughts related to the loss. This means that counterfactual thoughts of the probable-PGD participants, more often take the form of statements wherein the actor could have done something different to prevent the death of the loved one, for example: *“If I had contacted my father sooner, he would not have committed suicide”*. The counterfactual thoughts of the non-PGD participants are more often stated like: *“If my love had still been here, I would have been a happier person”*.

The validity, actor and direction of the counterfactual thoughts do not differ between the groups. In regard to these three counterfactual characteristics, frequencies reveal that the probable-PGD participants spontaneously generate less valid counterfactual thoughts, which could mean that these participants are less able to formulate actual counterfactual thoughts (‘What if’-statements like: “What if I had paid more attention while driving, then my child would still be alive”). As for the actor, the self-referent counterfactual thoughts occur the most within both groups (compared to other and non-referent counterfactual thoughts). This means that the nature of the thoughts is self-focused, where the bereaved person thinks he could have done something different himself. This finding is consistent with previous research on counterfactual thoughts (Dalglish, 2004; Davis et al., 1995), that states that bereaved people tend to focus on their own behaviour when thinking about the loss (or prevention of the loss). For the direction, the upward counterfactual thoughts are overrepresented, which means that the counterfactual thoughts represent a better outcome more often than a worse outcome (downward counterfactual thought). This finding is consistent with findings from the

study by Roese and Olson (1997), that argues that upward counterfactual thoughts represent the most common form of counterfactual thinking. This could mean that people more easily generate a better outcome when they think about the death of their lost loved one, which could be explained by the affective consequences of counterfactual thoughts. Upward counterfactual thoughts mostly serve a preparatory function, which means that individuals learn from past situations and adjust their behaviour in the future. Only when a past situation cannot be changed (e.g., the loss of a loved one) the occurrence of upward counterfactual thoughts may serve to cognitively avoid aspects of the loss, and subsequently hampering the grieving process (for a review: Eisma & Stroebe, 2017). Despite the loss of a loved one cannot be changed, the preparative function of generated upward counterfactual thoughts might explain the overrepresentation of these counterfactual thoughts following bereavement or other negative events (Roese, 1994).

Contrary to the specific expectation, it can be concluded that in this study the participants with probable PGD, do not report more self-referent upward and cause of loss-related counterfactual thoughts than people without PGD. This finding is not in line with both the specific expectation and results of previous studies (e.g., Eisma et al., 2021). The discrepancy between the results could be explained by the different ways in which counterfactual thoughts can be measured. Indeed, this study is in fact one of the first studies to explore counterfactual thoughts in a qualitative manner (written thoughts that have been explored and coded), after which frequencies per counterfactual characteristic have been investigated. But this method differs from the quantitative method, that is used in the study of Davis et al. (1995), where participants needed to answer the question “If only I had done something differently, my (child/spouse) would still be alive” with yes/no. In this study participants are being asked about their spontaneous generated counterfactual thoughts following their loss, after which they could give a description of their thought(s) in words.

This method of measurement also differs from the used methods in previous studies which are mainly concerned with how often people generate counterfactual thoughts (e.g., Eisma et al., 2021). Besides, it may be possible that the current qualitative manner in which the data is generated just does not reveal counterfactual thoughts in a way that the previous studies did, which could explain the discrepancy in results.

Some alternative explanations may also be helpful to consider. In exploring the self-referent upward and cause of loss-related counterfactual thoughts generated by both groups, there appears to be no difference. From the Cramer's V effect sizes that are used in this study, it can be seen that medium effect sizes are detected, which means that for example the distribution of the variable 'subject' of counterfactual thoughts differs between the groups. Smaller effect sizes are not detected, which means that for example the distribution of the variable 'validity of counterfactual thought' does not differ between the groups. A lack of statistical power could explain this finding, which could be caused by the sample sizes of both groups and the overall sample size. If we compare the current sample size (165 participants, whereof 54 belong to the probable-PGD group and 111 to the non-PGD group) to those of previous studies concerning counterfactual thoughts in bereaved people, it can be seen that the previous studies investigate somewhat larger samples of participants, ranging from 265 (Davis et al., 1995) to 282 participants (Eisma et al., 2021).

This study has contributed to gaining more knowledge about counterfactual thoughts in people suffering from prolonged grief symptoms (vs. people who do not). Insight in the relevance and contribution of counterfactual characteristics in generated counterfactual thoughts, could be implemented in existing and/or new treatments for prolonged grief so that more detailed and specific treatments could be developed and provided. Counterfactual thoughts could for example be addressed in cognitive restructuring or exposure therapy (as discussed in Boelen et al., 2007). More detailed and specific treatments may lead greater

clinically relevant improvement in patients suffering from prolonged grief symptoms.

Improvement in patients is needed because of the adverse consequences of prolonged grief.

Although this study is one of the first to explore the nature of spontaneously generated counterfactual thoughts in people that likely suffer from persistent and severe grief (vs. people that do not), some limitations should be mentioned. First, the sample of this study is a voluntary response sample, wherein all participants were Dutch and mainly lost their loved one due to a natural cause. Additionally, the sample consisted mainly of women (196 women versus 22 men). A voluntary sample of only Dutch people and an overrepresentation of women could pose a threat to generalization to the population of all people suffering from prolonged grief symptoms (including men and other nationalities). Secondly, despite the results of only the last measurement occasion (T3) were used in order to distinguish probable PGD from non-PGD, this resulted in a smaller sample size of $N = 218$ (compared to the $N = 987$ of the longitudinal dataset). This could be problematic because generalisation of results from a small(er) sample to a population could result in restrained conclusions which must be formulated with caution (Moore & McCabe, 2017). Based on these first two limitations, future research should aim to recruit a larger and a more representative sample of the population of people suffering from prolonged grief symptoms.

Third, during the coding process, we discovered that there were quite a lot of participants that did not give an actual 'If...then'-statement but formulated a general thought about their loss. This resulted in invalid counterfactual thoughts, leaving fewer counterfactual thoughts to explore. This can be seen as a consequence and a disadvantage of having too little data to explore. Less data results in less power which is also the case for this study, and therefore future research on counterfactual thoughts in prolonged grief should collect and consider more data to make more accurate and reliable decisions. It could be the case that although people think about the loss of their loved one, they simply do not think about the

‘undoing’ (or preventing) of the death, as was also found among the participants in study of Davis et al. (1995), where 44% of 75 participants reported to go over the event without mentally undoing it. If this is the case, future research could explore more extensively how counterfactual thoughts arise and are generated by people suffering from prolonged grief symptoms.

The final limitation concerns the cross-sectional design of this study, which means that data of individuals is collected at one specific timepoint (T3). This specific timepoint T3 was explicitly chosen in order to distinguish probable PGD from non-PGD and to make a comparison between the two groups (probable PGD and non-PGD). A disadvantage of this design is that it is difficult to establish cause-and-effect relationships. In this study this will be the relationship between self-referent upward and cause of loss-related counterfactuals and (probable) prolonged grief. Future research could explore the relationship with a longitudinal study design, which has the benefit of detecting developments or changes of the target population. An example of a longitudinal study is the study of Eisma et al. (2021), which investigated the interrelation of different types of counterfactual thoughts in response to negative life events. In this study counterfactual thoughts were measured with the Counterfactual Thinking for Negative Events Scale (CTNES), where participants had to indicate how often they experienced counterfactual thoughts on a 5-point Likert-scale. An experimental design could also be performed, to investigate the effects of an intervention which give insight into causal contributions (for example the contribution of counterfactual thoughts in prolonged grief). An example of an experimental study on counterfactual thinking is the study of Kray et al. (2010) which investigated the (causal) relationship between counterfactual thinking and meaning, by performing four experiments. In this study counterfactual thoughts were measured by descriptions of how a persons life would be now if the turning point incident had never occurred, that were given by the participants. Both

studies use a different measurement method and instruction to indicate counterfactual thoughts of participants compared to the used methods of this study. This finding emphasizes that counterfactual thoughts can be measured in different ways and these different methods could be explored further in future research.

Despite its limitations, it needs to be mentioned that this study is the first qualitative study to explore counterfactual thoughts, and that it uniquely contributes to explaining the type and nature of counterfactual thoughts generated in people who may likely suffer from persistent and severe grief (versus people who do not). Although the findings are not in line with the specific expectation, frequencies reveal useful information about generated counterfactual thought characteristics in probable PGD and non-PGD. Current findings could be used as targets in treatments for prolonged grief, so that these may lead to more clinically relevant improvement in patients suffering from prolonged grief symptoms. Future research should aim to replicate current findings, using larger and representative samples, and different designs, to further clarify the relationship between counterfactual thoughts and prolonged grief.

References

- American Psychiatric Association. (2022). *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, Text Revision (Dsm-5-Tr(tm))*: DSM-5-TR (5th ed.).
- Boelen, P. A., de Keijser, J., van den Hout, M. A., & van den Bout, J. (2007). Treatment of complicated grief: A comparison between cognitive-behavioral therapy and supportive counseling. *Journal of Consulting and Clinical Psychology*, 75(2), 277–284. <https://doi.org/10.1037/0022-006x.75.2.277>
- Boelen, P. A., & Lenferink, L. I. (2019). Symptoms of prolonged grief, posttraumatic stress, and depression in recently bereaved people: symptom profiles, predictive value, and cognitive behavioural correlates. *Social Psychiatry and Psychiatric Epidemiology*, 55(6), 765–777. <https://doi.org/10.1007/s00127-019-01776-w>
- Boelen, P. A., & Lensvelt-Mulders, G. J. L. M. (2005). Psychometric Properties of the Grief Cognitions Questionnaire (GCQ). *Journal of Psychopathology and Behavioral Assessment*, 27(4), 291–303. <https://doi.org/10.1007/s10862-005-2409-5>
- Boelen, P. A., & Prigerson, H. G. (2007). The influence of symptoms of prolonged grief disorder, depression, and anxiety on quality of life among bereaved adults. *European Archives of Psychiatry and Clinical Neuroscience*, 257(8), 444–452. <https://doi.org/10.1007/s00406-007-0744-0>
- Boelen, P. A., & Smid, G. E. (2017). The Traumatic Grief Inventory Self-Report Version (TGI-SR): Introduction and Preliminary Psychometric Evaluation. *Journal of Loss and Trauma*, 22(3), 196–212. <https://doi.org/10.1080/15325024.2017.1284488>
- Bonanno, G. A., & Kaltman, S. (2001). The varieties of grief experience. *Clinical Psychology Review*, 21(5), 705–734. [https://doi.org/10.1016/s0272-7358\(00\)00062-3](https://doi.org/10.1016/s0272-7358(00)00062-3)

- Bryant, R. A., Kenny, L., Joscelyne, A., Rawson, N., Maccallum, F., Cahill, C., Hopwood, S., Aderka, I., & Nickerson, A. (2014). Treating Prolonged Grief Disorder. *JAMA Psychiatry*, *71*(12), 1332. <https://doi.org/10.1001/jamapsychiatry.2014.1600>
- Bryant, R. A., Kenny, L., Joscelyne, A., Rawson, N., Maccallum, F., Cahill, C., Hopwood, S., & Nickerson, A. (2017). Treating Prolonged Grief Disorder: A 2-Year Follow-Up of a Randomized Controlled Trial. *The Journal of Clinical Psychiatry*, *78*(9), 1363–1368. <https://doi.org/10.4088/jcp.16m10729>
- Dalgleish, T. (2004). What might not have been: an investigation of the nature of counterfactual thinking in survivors of trauma. *Psychological Medicine*, *34*(7), 1215–1225. <https://doi.org/10.1017/s003329170400193x>
- Davis, C. G., Lehman, D. R., Wortman, C. B., Silver, R. C., & Thompson, S. C. (1995). The Undoing of Traumatic Life Events. *Personality and Social Psychology Bulletin*, *21*(2), 109–124. <https://doi.org/10.1177/0146167295212002>
- Doering, B. K., & Eisma, M. C. (2016). Treatment for complicated grief. *Current Opinion in Psychiatry*, *29*(5), 286–291. <https://doi.org/10.1097/yco.0000000000000263>
- Eisma, M. C., Buyukcan-Tetik, A., & Boelen, P. A. (2022a). Reciprocal Relations of Worry, Rumination, and Psychopathology Symptoms After Loss: A Prospective Cohort Study. *Behavior Therapy*, *53*(5), 793–806. <https://doi.org/10.1016/j.beth.2022.01.001>
- Eisma, M. C., Epstude, K., Schut, H. A., Stroebe, M. S., Simion, A., & Boelen, P. A. (2021). Upward and Downward Counterfactual Thought After Loss: A Multiwave Controlled Longitudinal Study. *Behavior Therapy*, *52*(3), 577–593. <https://doi.org/10.1016/j.beth.2020.07.007>
- Eisma, M. C., Janshen, A., & Lenferink, L. I. M. (2022b). Content overlap analyses of

- ICD-11 and DSM-5 prolonged grief disorder and prior criteria-sets. *European Journal of Psychotraumatology*, 13(1). <https://doi.org/10.1080/20008198.2021.2011691>
- Eisma, M. C., Schut, H. A. W., Stroebe, M. S., Boelen, P. A., van den Bout, J., & Stroebe, W. (2015). Adaptive and maladaptive rumination after loss: A three-wave longitudinal study. *British Journal of Clinical Psychology*, 54(2), 163–180. <https://doi.org/10.1111/bjc.12067>
- Eisma, M. C., & Stroebe, M. S. (2017). Rumination following bereavement: an overview. *Bereavement Care*, 36(2), 58–64. <https://doi.org/10.1080/02682621.2017.1349291>
- Epstude, K., & Roese, N. J. (2008). The Functional Theory of Counterfactual Thinking. *Personality and Social Psychology Review*, 12(2), 168–192. <https://doi.org/10.1177/1088868308316091>
- Greene, T. (2018). Blame, PTSD and DSM-5: an urgent need for clarification. *European Journal of Psychotraumatology*, 9(1). <https://doi.org/10.1080/20008198.2018.1468709>
- Kennedy, C., Deane, F. P., & Chan, A. Y. C. (2020). “What Might Have Been. . .”: Counterfactual Thinking, Psychological Symptoms and Posttraumatic Growth When a Loved One is Missing. *Cognitive Therapy and Research*, 45(2), 322–332. <https://doi.org/10.1007/s10608-020-10156-7>
- Kersting, A., Kroker, K., Steinhard, J., Lüdorff, K., Wesselmann, U., Ohrmann, P., Arolt, V., & Suslow, T. (2007). Complicated grief after traumatic loss. *European Archives of Psychiatry and Clinical Neuroscience*, 257(8), 437–443. <https://doi.org/10.1007/s00406-007-0743-1>
- Kray, L. J., George, L. G., Liljenquist, K. A., Galinsky, A. D., Tetlock, P. E., &

- Roese, N. J. (2010). From what might have been to what must have been: Counterfactual thinking creates meaning. *Journal of Personality and Social Psychology, 98*(1), 106–118. <https://doi.org/10.1037/a0017905>
- Lenferink, L., Eisma, M., Smid, G., de Keijser, J., & Boelen, P. (2022). Valid measurement of DSM-5 persistent complex bereavement disorder and DSM-5-TR and ICD-11 prolonged grief disorder: The Traumatic Grief Inventory-Self Report Plus (TGI-SR+). *Comprehensive Psychiatry, 112*, 152281. <https://doi.org/10.1016/j.comppsy.2021.152281>
- Markman, K. D., Gavanski, I., Sherman, S. J., & McMullen, M. N. (1993). The Mental Simulation of Better and Worse Possible Worlds. *Journal of Experimental Social Psychology, 29*(1), 87–109. <https://doi.org/10.1006/jesp.1993.1005>
- Moore, D. S., & McCabe, G. P. (2017). *Introduction to the Practice of Statistics* (9th ed. 2017). Macmillan Publishers.
- Neimeyer, R. A., Burke, L. A., Mackay, M. M., & van Dyke Stringer, J. G. (2010). Grief Therapy and the Reconstruction of Meaning: From Principles to Practice. *Journal of Contemporary Psychotherapy, 40*(2), 73–83. <https://doi.org/10.1007/s10879-009-9135-3>
- Pallant, J. (2020). *Spss Survival Manual: A Step by Step Guide to Data Analysis using IBM SPSS* (7th edition). Amsterdam University Press.
- Prigerson, H. G., Kakarala, S., Gang, J., & Maciejewski, P. K. (2021). History and Status of Prolonged Grief Disorder as a Psychiatric Diagnosis. *Annual Review of Clinical Psychology, 17*(1), 109–126. <https://doi.org/10.1146/annurev-clinpsy-081219-093600>
- Roese, N. J. (1994). The functional basis of counterfactual thinking. *Journal of Personality and Social Psychology, 66*(5), 805–818. <https://doi.org/10.1037/0022-3514.66.5.805>
- Roese, N. J., & Epstude, K. (2017). The Functional Theory of Counterfactual

- Thinking: New Evidence, New Challenges, New Insights. *Advances in Experimental Social Psychology*, 56, 1–79. <https://doi.org/10.1016/bs.aesp.2017.02.001>
- Roese, N. J., & Olson, J. M. (1997). Counterfactual Thinking: The Intersection of Affect and Function. *Advances in Experimental Social Psychology*, 1–59. [https://doi.org/10.1016/s0065-2601\(08\)60015-5](https://doi.org/10.1016/s0065-2601(08)60015-5)
- Rosner, R., Pfoh, G., Kotoučová, M., & Hagl, M. (2014). Efficacy of an outpatient treatment for prolonged grief disorder: A randomized controlled clinical trial. *Journal of Affective Disorders*, 167, 56–63. <https://doi.org/10.1016/j.jad.2014.05.035>
- Rye, M. S., Cahoon, M. B., Ali, R. S., & Daftary, T. (2008). Development and Validation of the Counterfactual Thinking for Negative Events Scale. *Journal of Personality Assessment*, 90(3), 261–269. <https://doi.org/10.1080/00223890701884996>
- Shear, K., Frank, E., Houck, P. R., & Reynolds, C. F. (2005). Treatment of Complicated Grief: A Randomized Controlled Trial. *JAMA*, 293(21), 2601. <https://doi.org/10.1001/jama.293.21.2601>
- Szuhany, K. L., Malgaroli, M., Miron, C. D., & Simon, N. M. (2021). Prolonged Grief Disorder: Course, Diagnosis, Assessment, and Treatment. *FOCUS*, 19(2), 161–172. <https://doi.org/10.1176/appi.focus.20200052>
- White, K., & Lehman, D. R. (2005). Looking on the Bright Side: Downward Counterfactual Thinking in Response to Negative Life Events. *Personality and Social Psychology Bulletin*, 31(10), 1413–1424. <https://doi.org/10.1177/0146167205276064>
- World Health Organization. (2019). *International statistical classification of diseases and related health problems* (11th ed.) <https://icd.who.int/>

Table 1*Characteristics of the full sample (N=218)*

Characteristics	<i>N</i>	Percentage %	Mean <i>M</i>	Standard Deviation (<i>SD</i>)	Range (min-max)
Socio-demographics:					
Gender					
<i>Male</i>	22	10%			
<i>Female</i>	196	90%			
Age in years			54	(12.51)	20-79
Education level					
<i>Higher education</i>	125	57%			
<i>Lower education</i>	93	43%			
Characteristics of loss:					
Relationship deceased					
<i>Partner</i>	102	47%			
<i>Parent</i>	61	28%			
<i>Sibling</i>	10	5%			
<i>Child</i>	30	14%			
<i>Other</i>	15	7%			
Gender of deceased					
<i>Male</i>	141	65%			
<i>Female</i>	72	33%			
<i>Other</i>	5	2%			
Time since loss (months)			15.36	(1.83)	13-61
Cause of loss					
<i>Natural loss (illness/Covid-19)</i>	178	82%			
<i>Accident</i>	11	5%			
<i>Murder</i>	1	1%			
<i>Suicide</i>	28	13%			
Expectedness of loss					
<i>Expected</i>	53	24%			
<i>Unexpected</i>	121	56%			
<i>Different (both or neither)</i>	44	20%			
Existence of (probable) prolonged grief disorder:					
<i>Yes (probable PGD)</i>	70	32%			
<i>No (non PGD)</i>	148	68%			

Table 2

Degree of agreement between the codes (per coded variable), N = 218

Variables	Similarity (vs. discrepancy)	Percentage of agreement	Cohen's Kappa	Approximate Significance
Validity of CT	214 (4)	98%	.966	$p < .001$
Actor	208 (10)	95%	.906	$p < .001$
Direction	214 (4)	98%	.955	$p < .001$
Subject	214 (4)	98%	.973	$p < .001$

Note: CT = counterfactual thought. The variable “Validity of CT” consists of valid counterfactual thoughts, probable counterfactual thoughts, and invalid counterfactual thoughts. “Actor” consists of self-referent, other-referent, non-referent and self & other-referent counterfactual thoughts. “Direction” consists of upward or downward counterfactual thoughts and “Subject consists of loss-related, cause of loss-related and neither (nor loss or cause of loss-related). The scale of effect sizes for kappa: ES: .5 = moderate, ES \geq .7 = good and ES \geq .8 = (near)? perfect agreement (Pallant, 2020).

Table 3*Counterfactual characteristics of the probable PGD group versus the no-PGD group*

CT characteristic	Probable PGD	Non-PGD	Full sample
<i>N</i> per group	<i>n</i> = 70	<i>n</i> = 148	<i>N</i> = 218
Validity of CT			
Valid CT	36 (51%)	98 (66%)	134 (62%)
Probable CT	18 (26%)	13 (9%)	31 (14%)
Invalid CT	16 (23%)	37 (25%)	53 (24%)
<i>N</i> per group	<i>n</i> = 54	<i>n</i> = 111	<i>N</i> = 165
Actor			
Self-referent	37 (68%)	68 (61%)	105 (64%)
Self & other-referent	2 (4%)	10 (9%)	12 (7%)
Other-referent	8 (15%)	12 (11%)	20 (12%)
Non-referent	7 (13%)	21 (19%)	28 (17%)
<i>N</i> per group	<i>n</i> = 54	<i>n</i> = 111	<i>N</i> = 165
Direction			
Upward	54 (100%)	107 (96%)	161 (98%)
Downward	0 (0%)	4 (4%)	4 (2%)
<i>N</i> per group	<i>n</i> = 54	<i>n</i> = 111	<i>N</i> = 165
Subject			
Loss-related	2 (4%)	15 (14%)	17 (10%)
Cause of loss	42 (78%)	61 (55%)	103 (62%)
Neither	10 (18%)	35 (31%)	45 (28%)
<i>N</i> per group	<i>n</i> = 54	<i>n</i> = 111	<i>N</i> = 165
Self-ref. upward & cause of loss-related CT			
Yes	28 (52%)	44 (40%)	72 (44%)
No	26 (48%)	67 (60%)	93 (56%)

Note: CT = counterfactual thought. The variable: “Self-ref. upward & cause of loss-related CT”

is the combination of self-referent, upward and cause of loss-related counterfactual thoughts.

Table 4*Follow-up Chi-Square Test of 'Subject'*

Variable	Chi-square value (X^2)	Significance level p	Effect size	Full sample N
Subject				
<i>Loss vs. other</i>	3.78 (df = 1)	$p = .052$	Cramer's V: 0.15	$N = 165$
<i>Cause vs. other</i>	8.07 (df = 1)	$p = .005$	Cramer's V: 0.22	$N = 165$
<i>Neither vs. other</i>	3.10 (df = 1)	$p = .078$	Cramer's V: 0.14	$N = 165$

Note: CT = loss = loss-related counterfactual thought, cause = cause of loss-related counterfactual thought and 'other' means the remaining categories of the variable.

Attachments

Appendix A: Manual for coding of counterfactual thoughts and counterfactual characteristics

Coding-manual

Validity of counterfactual thought (yes or no counterfactual)

0. No valid counterfactual thought (invalid counterfactual thought):

No if or no then:

- *I miss my mom very badly*

If but not then (also not possible to fill in the 'then'):

- *I wish I had been nicer to him*

Not readable:

- *Also, I am watching baker bin Langston was gone, if okay then could prevent day him*

Another topic/subject:

- *If I started my master sooner, my family would have been happier*

1. Valid counterfactual thought:

If...then...

- *If I had done the right thing, there might not have been any complications*

Note: Also, code as '1' if it is not about the loss event or about a future event

- *If she was here, I would call her now to talk about everything*

2. Probable counterfactual thought:

If but no then, but it's easy to fill in the 'then' (whereby the 'then' is about the loss-event)

Loose thoughts that do start with: "What if, where you can fill the 'then' that is about the loss:

- *I wish I had listened more to my feelings (self-referent counterfactual thought without a consequence)*

The sentence is built as a question but is easy to be changed to a 'what if.. then' statement:

- *Would he have lived if I had done more to improve his quality of life?*

Actor

1. **Self-referent:**

If I:

- *If I had done the right thing, there might not have been any complications*
- *If I had pressed the doctors more, then he might still be alive*

2. **Other-referent:**

If he/she/the doctor/my mother etcetera (Note: if it is about getting sick or dying than code it is non-referent, see below):

- *If the mental health services had admitted him, he would not have committed suicide*
- *If he had opted for treatment, would it then have ended differently?*

1,2: Self and other-referent:

If we... (with the person that gave the counterfactual thought):

- *What if we had not listened to the physiotherapist and gone to the hospital...*
- *If we had partied less, she would not have gotten sicker...*

3. **Non-referent:**

Illness (being sick) or the death as actor:

- *If he had not gotten sick, we would still be together*
- *If she had not been in an accident, she would still be alive*

If it's unclear whether the actor in the sentence could have done something, like an act or could not have influenced the outcome:

(Has the person/other/the circumstance done something? Or could he/she have done something? > Yes: code it as self- or other-referent, No: code it as non-referent)

- *If I knew what was going to happen, we could have talked more*

Name or remove the circumstance:

- *If he had not died...*
- *If he had not been hit...*
- *If my husband had been home for rehabilitation...*

Circumstance is the subject in the sentence:

- *If my marriage/If our marriage*

Subject

1. **Loss-related:**

The loss is stated, but as a fact:

- *If my parent had not died, would I have been less insecure?*
- *If my love had still been here, I would have been a happier person*

2. **Cause of loss-related:**

If the actor in the sentence could have done something or if something else happened, then the person would not have died:

- *If my father had gone to the doctor sooner, he might not have been too late for treatment*

3. **Neither (loss nor cause of loss-related):**

Actor in the sentence could have lived longer/there could have been a better goodbye/there could have been more time together/dealing with the loss could have been easier etcetera

Thought is about another topic/subject:

- *If my love had left things for our family, we could have coped with the grief more easily*
- *If he had received that medicine, he could have lived a little longer*

Direction

1. **Upward:**

If...then statement, states a better alternative situation:

- *If I had done the right thing, there might not have been any complications*

2. **Downward:**

If...then statement, states a worse alternative situation:

- *If the other car had crashed into us a little more to the right, my other child would not have been there either (would have been dead as well)*

Something that has been done/something that has not been done

1. **Something that has been done:**

- *If I had not told them to go out for a while, he would not have gotten in the car and might still be alive*

2. **Something that has not been done:**

- *If I had some more personal and deeper conversations with him back then, we could have avoided this*
- *If he had been alive, I would have been happier*

When the participant generated more than one counterfactual thought

- *If the operation had been continued during the pregnancy (which was advised by one professor and disapproved by another), then he might not have died. If they (the doctors) had not changed that breathing tube, then maybe he would not have died.*

^ The coding needs to be based on the first given counterfactual thought and it should be noted that there are ‘multiple/more than one counterfactual thought(s)’