The detection of unhealthy grieving processes and the need for professional help in an online tool for grieving

Bachelor End Project

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Abstract

In this research, the need for professional help in grief and how to detect this in a possible online tool that aids people in their grieving process is researched. First, literature research was done about different manifestations and possible risk factors of complicated grief. Then, qualitative research was conducted in the form of thematic analysis applied on interviews with professionals to find clear indications, risk factors and treatment options for complicated grief in practice. Lastly, the technological possibilities for detection were researched to be able to make a recommendation about how to detect the need for professional help in an online tool for grieving.

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Introduction

Grief is something most people will have to deal with at some point in their life. Grieving is a natural process that for most people will go normally and even though it might be hard at the beginning, most people will eventually be able to go on with their daily lives without too much negative interference from bereavement.

Currently, research is conducted to help design an online tool that would aid them in this process (Franken, 2022). For most people, an online tool might create an opportunity to get additional support in their grieving process. Others, however, who experience or are at risk for an abnormal grieving process, will need professional help to guide them through this process. For this particular group, the use of an online tool might not be safe and could lead to mental health problems, complicated grief, or short-term behavioral problems due to extreme emotions. On the other hand, the use of the online tool could also be supportive for this group, as the tool could notify them of their need for (professional) help, in case they are not yet aware of this. This could result in more people seeking the help they need or people seeking help earlier on in their abnormal grief reaction. For both these circumstances, it is important to be able to detect if and when people need professional guidance in their grieving. Therefore, in this research, the need for professional help regarding grief and how this detection could be implemented in an online tool for grieving will be studied and discussed by the hand of literature and interviews with clinical professionals.

Abnormal grief reaction

There are multiple causes that create a need for professional help in regard to grief, but the main term for these causes is complicated grief. Complicated grief can manifest itself in many forms and is therefore sometimes called pathological grief, unresolved grief, complicated grief, chronic grief, prolonged grief, delayed grief or exaggerated grief (Worden, 2018). In the book *Grief Counseling and Grief Therapy* by Worden (2018, p. 137), complicated grief is defined as follows:

“Complicated bereavement is the intensification of grief to the level where the person is either overwhelmed, resorts to maladaptive behavior, or remains interminably in the state of grief without the progression of the mourning toward completion. In normal grief, the transition, however painful, is neither overwhelming, interminable, nor prematurely interrupted. “

The main difference between complicated and uncomplicated (normal) grief lays in the intensity or the duration of the symptoms of the grief, rather than in the presence or absence of specific symptoms or the behavior of the individual itself (Horowitz, Wilner, Marmar, Krupnick, 1980).

According to Worden (2018), there are four certain categories of complicated grief where grief therapy is mostly needed. These categories are prolonged or chronic grief, delayed grief, masked somatic grief, or exaggerated grief.

Chronic grief is experienced when the grieving process is considered stagnated. People who experience chronic grief are aware that their grief is abnormal since the loss has happened a long time ago while the intensity of their symptoms did not decrease (Worden, 2018). In research by Boelen and Prigerson (2007), it was found that higher prolonged grief disorder levels were a predictor for suicidal thoughts, which confirmed earlier findings in research that prolonged grief itself heightens the chance of experiencing suicidal thoughts, without the influence of depression and anxiety.

Delayed grief is where the emotional reaction was nonexistent or not sufficient to the loss at the time of the loss. This insufficient reaction might be caused by many circumstances, e.g., a lack of social support or feeling overwhelmed by the number of losses (Worden, 2018).

When the grief is masked as somatic or behavioral symptoms, people experience certain symptoms but are usually not aware this is caused by their unresolved grief. The grief generally turns up as either maladaptive behavior or a physical symptom. Physical symptoms could for example be pain or sleeping problems, whereas maladaptive behavior could for example be the development of anorexia nervosa or delinquent behavior. This form of complicated grief has the same cause as delayed grief, where at the time of the loss the emotional reaction was nonexistent or not adequate to the loss. Consequently, they have unresolved grief that causes somatic or behavioral symptoms (Worden, 2018).

If complicated grief manifests itself as exaggerated grief, the person suffers from a psychological or psychiatric disorder that is caused by loss. It has the same symptoms as normal grief, however the intensity of these symptoms causes the person to become dysfunctional. For example, feelings of depression or anxiety can occur after a loss, but it is abnormal to experience a major depressive episode (MDE) or develop an anxiety disorder (Worden, 2018). These symptoms would fall under exaggerated grief. Thus, individuals with symptoms that are associated with normal grief but excessive in such a way that the individual is dysfunctional and needs professional help are suffering from exaggerated grief. Important to note is the difference between exaggerated and previously mentioned masked grief: patients with exaggerated grief are aware that their symptoms are caused by their bereavement whereas with masked grief the patients are unaware of this.

Prolonged Grief Disorder

The DSM-5 and ICD-11 have been updated and now include diagnostic criteria for so-called Prolonged Grief Disorder (PGD). Studies have shown that symptoms of PGD are separate from symptoms of bereavement-related depression and anxiety, what would be exaggerated grief, according to Worden (2018). Prigerson et al. (2009) proposed the following six categories as diagnostic criteria for PGD to be included in the DSM-5 and ICD-11:

Category A: Event. The event causing the symptoms should be bereavement (loss of a significant other).

Category B: Separation distress. The bereaved person should experience yearning (e.g., pining for the deceased) either daily or to a disabling degree.

Category C: Cognitive, emotional and behavioral symptoms. The bereaved person must at least experience five of the following symptoms to a disabling degree:

- Confusion about one’s role in life or diminished sense of self
- Difficulty accepting the loss
- Avoidance of reminders of the reality of the loss
- Inability to trust others since the loss
- Bitterness or anger related to the loss
- Difficulty moving on with life
- Numbness
- Feeling that life is unfulfilling/meaningless since the loss
- Feeling stunned, dazed or shocked by the loss

Category D: Timing. The diagnosis should not be made until the bereavement is at least 6 months ago.

Category E: Impairment. The symptoms cause clinically significant impairment in important areas of daily functioning.

Category F: Relation to other mental disorders. The symptoms and impairment are not better explained by major depressive disorder, generalized anxiety disorder or posttraumatic stress.

Most importantly thus seems to be that it is related to a bereavement which has occurred at least six months ago and that the symptoms are experienced to a disabling degree that causes impairment in important areas of functioning. The disturbance should not be better accounted for by other mental health disorders like depressive disorder, however then it would not be PGD but still, according to Worden (2018), a form of complicated grief (exaggerated grief). Still, it is important to differentiate between Major Depression and PGD, since there is solid evidence that depression treatment for PGD is far less helpful than therapy targeted for grief (*Diagnosis | Center for Complicated Grief*, 2021).

Risk factors for complicated grief

Next to detecting complicated grief and its effects, there are also factors regarding the individual and the loss itself that are predictors for a failed grieving process and thus the need for aid that could be detected. In the book *Grief Counseling and Grief Therapy* by Worden (2018), seven mediators that can influence grieving are described: kinship, the nature of attachment, how the person died, historical antecedents, personality variables, social variables and lastly concurrent losses and stresses. Some of these areas are specifically important in understanding why people fail to grieve and might give an early indication whether the person will need professional help. This could be helpful in the detection of the need for help in an online environment, since then there might be an earlier intervention possible for people who are at risk for complicated grief.

The first factor that is important in the determination of the grief process, is the type of relationship one had with the deceased. Worden (2018), states that the types of relationships that most frequently causes people to fail in grieving are: the *highly ambivalent one with unexpressed hostility,* where because of the inability to deal with the ambivalence, grieving often causes excessive anger and guilt; a *highly narcissistic relationship,* where the griever also as it were loses a part of oneself; a *negative relationship* were the death might remind one of upsetting memories of the past or even (unresolved) traumas; and a *highly dependent* relationship, where the loss of the one they were dependent on can create a change in self-image from a strong person to a weaker, more helpless one.

The circumstance of the death can also have an impact on how the griever deals with mourning and how extreme the symptoms are. Firstly, how the person died influences the way they are mourned and can therefore affect the grieving process. In general, deaths are cataloged under the NASH categories: natural, accidental, suicidal, or homicidal. However, more specific kinds of losses can create more problems for the person left to grieve, for example losses from suicide, sudden death, a miscarriage, or abortion (Worden, 2018). Loss by suicide poses a risk factor for suicidal behavior especially in close relatives of the individual who committed suicide. Therefore, people who experience bereavement due to suicide are especially in need professional help in their grief (Linde et al., 2017). Other circumstances surrounding the death that can impact the grieving process negatively are: the loss is uncertain; inconclusive grieving (you believe they are alive but they are most likely

not); and multiple losses (either at the same time or over a short period of time) (Worden, 2018).

Furthermore, how people have grieved in the past is a great indicator of their current grieving process. People who have already experienced complicated grief in the past have a higher probability of experiencing it again after their current loss (Worden, 2018). Given the historical factor, not only their past grieving experience but also their medical history regarding mental health might indicate a grieving process that is more likely to fail. People who have for example suffered depression in the past, are at higher risk for complicated grief (Parkes, 1972).

Another mediator that can be a predictor in the development of complicated grief are social factors (Wilsey & Shear, 2007). Since grieving itself is a social process, a social circle in which people can find and give support is important. There are three conditions regarding social factors that are known to give rise to a complicated grief reaction: the death is socially unspeakable (e.g., sometimes in case of suicidal death); the loss is socially negated (when people act the loss did not happen, e.g., in some cases of abortion); and the absence of a social support network (Worden, 2018).

Factors regarding the individuals' personality, which not only describe the person's character but most importantly how their personality affects their ability to handle emotional distress, also play a great role in the course of the grief process. People who for instance rather avoid certain feelings like helplessness, may later experience an abnormal grief reaction (Worden, 2018). This connects to the phenomenon of rumination, which is found to be an indicator for an abnormal grieving process and the development of other mental health problems regarding grief for which professional help is needed (Eisma, Stroebe, Schut, Stroebe, et al., 2013; van der Houwe, Stroebe, Schut, Stroebe, 2010). There are two kinds of rumination that might predict complicated grief or other mental health problems: grief rumination and depressive rumination.

Grief rumination is *"the repetitive and recurrent thinking about causes and consequences of the loss and loss-related emotions."* (Eisma et al., 2013, p. 60). Two theories are discussed in past research for grief rumination: Responsive Style Theory (RST) and the Rumination as Avoidance Hypothesis (RAH). RST conceptualizes rumination as a maladaptive confrontation strategy, whereas RAH conceptualizes it as an avoidance strategy. These seem to be contradictory to each other, but since the early stages of RST it has been argued that rumination is strongly related to avoidance: constantly focusing on one's feelings or the event of loss might serve as an avoidance strategy for the more painful aspects of the loss (Eisma et al, 2013).

Depressive rumination focuses exclusively on depressive feelings and symptoms (Eisma et al., 2013). Depressive rumination has a negative impact on how people cope with their loss since ruminators often not only experience more general distress but also higher levels of depression, anxiety, posttraumatic stress, and complicated grief symptoms (Eisma & Stroebe, 2017).

Grief rumination and depressive rumination differ mostly in the feelings they focus on. Whilst depressive rumination focuses solely on depressive feelings, grief rumination can focus on many other emotional experiences, like yearning, guilt, anger, loneliness, or anxiety (Eisma & Stroebe, 2017). Grief rumination is found to be a better long-term predictor of mental health problems after loss than depressive rumination (Eisma et al, 2013).

However, not all forms of grief rumination are an inadequate reaction to grief (Eisma & Stroebe, 2017). Some reflection is normal in the grieving process and it is complex to

differentiate between good and bad rumination. This differentiation between healthy and unhealthy rumination is one of the problems that interviews with professionals who have experience in practice might help answer.

Online tool and abnormal grief reactions

To answer the research question '*When is there professional help needed in the grieving process and how can this be detected in an online setting that aids people in grieving?'*, it first needs to be researched when there is considered to be a need for professional aid in the grieving process and how in the detection there can be dealt with individual differences in grief and the need for help.

Next to differentiating good and bad rumination, there are many other aspects regarding the detection of abnormal grief reactions for which there is a gap in the current literature and that might be clarified with in-depth interviews of clinical professionals. For example, the combination of certain risk factors might be a better predictor for abnormal grief than other combinations, or some character traits might have more influence on the course of the grieving process than others. There is also a difference between the consequences of direct behavioral symptoms due to extreme emotions caused by loss and complicated grief, but for both intervention might be needed. This forms the sub-questions '*when is professional help needed regarding people in grief?'* and '*how can be dealt with the individual differences in grieving regarding the need for professional help'*, which can be better explained with the perspectives and experiences of mental health professionals.

Lastly, it is also important to discuss how to proceed when professional help is needed. There might be important differences in the urgency for professional help to deal with: for example when differentiating between someone who needs help because they are at high risk for complicated grief and someone who needs immediate intervention because of suicidal tendencies.

Methods

Participants and design

The research consisted of in-depth structured interviews with professionals who have experience working with people in (complicated) grief. The goal of the interviews was gathering in-depth information about when professional help is needed in grieving, how this need is detected in practice and how to proceed with treatment when this is detected.

Multiple professionals were approached via emails found either online or via personal contacts in the health community. Since there was only a need for professional opinions of people who have practice experience with patients with an abnormal grieving process, no other inclusion criteria were used. Ethical approval was granted by the Ethical Review Board of Eindhoven University of Technology, and each participant was offered a compensation of €10 per half an hour.

The participants consisted of five females. The sample consisted of three clinical psychologists, a mental health nurse of a general practice and a grieving coach working in the Netherlands. The mean age of the participants was 38 years old with one missing value. When processing the data, it was considered that one of the participants is not mental health care registered. An attempt has been made to separate subjective opinions from objective findings. The transcriptions can be requested for inspection.

Procedure of the interviews

All participants were informed about the purpose and content of the study and signed an informed consent form before the start of the interviews. The interviewer followed a guide containing precomposed questions. The questions were based on literature research about grieving in general and abnormal grief reactions. The goal of the interview was to gain more insight in different grieving processes, risk factors for complicated grief, symptoms of complicated grief and treatment options for complicated grief. Each interview lasted between 30 and 60 minutes. Interviews were either held at the workspace of the participant or online with Microsoft Teams. With the participants' consent, interviews were audio-recorded with a voice recorder and stored in a secured location for transcription. The interviews were conducted in Dutch.

Data analysis

Each interview was transcribed by the hand of the audio recordings. After having transcribed all interviews, a thematic analysis was done to find the primary themes. Thematic analysis was conducted by first coding every transcription individually. Then, the codes were grouped together to form main themes and subthemes. These themes were used to write the results section, were quotes from the interviews were used to substantiate the findings. Since the interviews were conducted in Dutch, the quotes used were translated as accurate as possible to have the same meaning in English.

Results I – Thematic analysis

In this section, the themes gained from the interview data are discussed and substantiated with quotes from the interviews. To decide on the main and sub themes, the biggest talking points and recurring topics were found and marked in the form of codes in the transcripts. Main themes were created and then subdivided into subthemes to give a clear overview of the relevant subjects discussed in the interviews. The experiences of the participants in practice with grief and the discussed themes were grouped together based on the subject regarding grief relevant for answering the research question and being able to form a recommendation for the online tool.

1. Normal grief in practice

1.1 Different forms of grief

Participants mentioned different causes for grieving. Most common was the loss of a loved one, where the relation to the loved one can also cause a different form of grief (e.g., a child, a good friend, a mother). Further mentioned was grief following the diagnosis with a chronic disease, where the loss of a part of your health and "*the magical thought that we will always live*" were seen as the main cause. A revalidation process, e.g., after a cancer diagnosis, a stroke or the loss of a limb, was also said to highly resemble a grief process after bereavement. Next to that, a sudden negative big change in life, like being fired from your job, were said to be able to give arise to a grieving process.

1.2 Stages of grief in practice

When asked about the five stages of grief in practice (denial, anger, bargaining, depression, acceptance), all participants stated that they did see them in their patients, however most of the time not in chronological order. A stage can manifest itself more than once, for example triggered by a certain event later in life. More than one participant stated that they saw anger and depression more intertwined than separate of each other and that these are the stages most clearly seeable in mourning people. The denial stage was important for grief regarding revalidation, because it sometimes causes people to deny their need for therapy in the first period. Since mostly the anger and depression stage have overlapping symptoms with complicated grief, it is sometimes hard to differentiate between normal and complicated grief and therefore knowledge of the stages of grief in practice is important to diagnose stagnated grief.

1.3 Alternative theories

Not all participants liked working with the Five Stages of Grief theory. Some mentioned other theories they used, also for the recognition of possible complicated grief, which they gave explanations about. Since they explained them in regard to differentiating a normal grieving process from an abnormal grieving process, the answers will be discussed.

1.3.1 Dual process model

One participant mentioned the dual process model by Stroebe and Schut specifically, and other participants mentioned examples like this or relating to this theory, as an example of the basis to a healthy grieving process. The participant said: *"...And on the one hand you have, focusing on it, dwelling on the loss, reminiscing. And on the other side you have letting go of life as it was, moving on with your life, adjusting to the new situation. And that model already shows very clearly that you really need two things to learn to live with grief, with your enormous loss".* It is also mentioned as an example that it is fine to sometimes stagnate for a bit, or not know how to deal with your grief at times, without it necessarily being complicated grief.

1.3.2 Grief tasks by J. William Worden

More than one participant stated, when asked about the five stages of grief in practice, that they rather use the grief tasks by Worden (2009), also used by Keirse (2017), as theories for grief in real life. These grief tasks are:

1) Accepting and facing the reality of the loss.

2) Experiencing and processing the loss and pain. The second period focuses on the emotions.

3) Adjusting to life without the deceased. Adapting to life again by making both external and internal adjustments.

4) Look back on memories and the connection with the deceased, by preserving the memories of the deceased and starting to love life again.

Since most participants stated that they, in practice, saw the stages anger and depression often more intertwined than separate and bargaining more as a coping mechanism in these stages, this theory would better represent a grieving process in practice. It might also be a better chronological explanation for grief than the Five Stages of Grief theory.

2. Risk factors for complicated grief

Next to symptoms of complicated grief, the participants mentioned many risk factors that can help predict the possible development of complicated grief. The risk factors were divided into three subthemes: individual differences, context of the event that caused the grief and social factors.

2.1 Individual differences

2.1.1 Characteristics

Multiple participants mentioned that the predisposition of the mourner was an important factor in developing complicated grief. If the mourner is more sensitive to feeling anxious, somberness and/or becoming passive or worrying a lot, they are more likely to develop complicated grief disorder.

Another important factor is how a person generally copes with his/her emotions: someone can either have a passive or an active coping style. With a passive coping style, the mourner will more likely avoid their feelings and emotions regarding the loss and be of more risk for complicated grief than when having an active coping style. A person with an active coping style will more directly work through their grief, by for example adapting their daily habits to be more fitting in their life after the loss. A participant stated that they "*can really imagine that if someone has a very passive, avoidant coping style, they will be at more risk for stagnated grief".* Another participant mentioned: *"...yes, I think if someone is indeed more inclined to actually hide emotions anyway, and actually, [..] mainly bottle them up and does not express them to others or doesn't dare themselves to feel it actually... So, someone who might also have some kind of fear of expressing or allowing themselves to feel emotions...".* This connects with the found evidence of ruminating as a predictor for complicated grief, which has been conceptualized as an avoidance strategy.

2.1.2 Age

The age of the mourner was mentioned as a risk factor, in the sense that people of older age will probably be less likely to develop complicated grief since, because of old age, they will accept the loss more easily. A participant said about this: "*I also think the age, that also makes a difference in how easily you can stagnate [in grief] maybe: I can imagine that someone of 90 years will more easily feel like it's okay, than at a younger age...".*

2.1.3 Feelings of guilt

Several participants stated that feelings of guilt regarding the loss can cause obstacles in resuming daily life activities, which they stated to be a strong indicator for complicated grief. This can be either feeling guilt about continuing with their lives after the death of a loved one, which then again can lead to avoiding their feelings which is also a predictor for complicated grief. It can also be feeling guilty about something regarding the loss. An example of this mentioned was about a girl who was in therapy because of abnormal grief: *"When her, I think it was her grandpa, died, she hadn't visited him for a long period of time and therefore she did not really experience his sickbed. For this, she felt really guilty".*

2.1.4 (Medical) history

History of the person consists of both their medical history and their life history. Medical history was mentioned as a risk factor if they have experienced depression, posttraumatic stress, or other mental health problems like substance abuse in the past.

Another important mental health issue mentioned was if the mourner has personality disorders. Two specific cases were mentioned: A Dependent Personality Disorder (DPD) and Borderline Personality Disorder (BPD). The diagnosis DPD could form a risk because

the contact with the deceased was very close and BPD could form a risk because fear of abandonment is a common theme in this disorder. The participant that mentioned these disorders stated: *"For example, a dependent personality disorder; and certainly if someone had very close contact with someone who has died, that is also something that makes it much more difficult for someone to deal with the death than usual. If someone really had a dependency relationship with that person [..] or, for example, in borderline personality disorder, abandonment also plays a very large role, so I also think such kind of personality problems could also ensure that the mourning goes differently and may also be much more intense for that person".*

Regarding life history, having a traumatic youth was mentioned as a possible predictor for complicated grief since this most of the times creates more risk for mental health problems in general.

2.2 Context of event that caused the grief

The context of the event that caused the grief is important in more than one way. If the grief is caused by the death of a loved one, three aspects of the context are important: the cause of death and if this cause was experienced as traumatic; at what age someone has died; and the relationship the mourner had with the deceased. If the grief was caused by other events, like health problems or the loss of a job, the event causing posttraumatic stress is an important predictor for complicated grief.

2.2.1 Traumatic event

For all forms of grief, e.g., the death of a loved one or the loss of a job, if the event causes posttraumatic stress (that is not necessarily a posttraumatic stress disorder), there is a higher chance for complicated grief. Examples mentioned are losing your job in a bad way, or the cause of death of a loved one being traumatic. For revalidation or grief because of illness, it is important what the clinical picture was. A psychologist mentioned: *"it is harder for patients who had to go back to hospital very often, not knowing what to expect, than for people getting a certain diagnosis and having to accept that".*

For grief caused by the loss of a loved one, the event that caused the death might be traumatic. This often results in the person not being able to talk about their loss or reliving these memories. One participant mentioned an example, where the trauma caused the person to not being able to talk about the loss in therapy: *"For example, I recently started treatment with a man where his wife died a few months ago, very suddenly while they were on vacation, so abroad, and so he experienced that as very traumatic and now a few months later, it still does so much to him and he only has to think about it and he already bursts out into tears..".*

2.2.2 Cause of death

In case the grief is caused by the death of a loved one, the cause of death is an important factor. If there was a long sickbed, the grieving process starts earlier on and there is thus less chance of the grief stagnating later on.

However, if the cause prevented the mourner to (properly) say their goodbyes to the deceased, which can be for example be due to an unexpected death or during the COVID-19 pandemic, there might be a bigger chance of the grieving process to be abnormal. This is also the case for not being able to perform the needed rituals, like having a decent funeral.

Death by suicide was also mentioned to be a risk factor for developing complicated grief.

2.2.3 Age of the deceased

The age at which the loved one has died is also important for predicting complicated bereavement. If the age is seen as too young, the death might cause more anger or sadness since it is not in the expected course of life. One participant said about this: *".. I think it makes a difference if someone dies, for example, at the age of 40 or a child dies or if someone is over 80 and dies: yes, that is also bad and the missing is still there, but that is more in the line of expectation of life. So, it is easier for yourself to understand after such a loss".*

2.2.4 Relationship with the deceased

Two important notes were made about the context regarding the relationship with the deceased. Firstly, if the relationship was very apparent in their daily lives, the loss has a bigger effect on their daily activities and having to learn to rearrange their lives might be experienced as more difficult.

Secondly, if there was a close and dependent relationship with the deceased, there is a higher chance of developing complicated grief. An example was mentioned about a patient who lost his wife, was*: "…for example, they also worked for the same employer, they always went together; he never actually did anything alone and therefore we also start to suspect that maybe something of dependence also plays a role, why he experiences it [the loss] as extra drastic, so to speak".*

2.3 Social factors

Social factors relate to the support system the mourner has, and mostly about how they can communicate with them about their grief. On one side, the extent of the social support system is important: how many people can they fall back on? Next to that, it is important how well these people understand their grief. An example was mentioned about a woman who had a lot of problems caused by her grief, mostly concentration problems, still after two months after the loss. The people around her did not understand this, which caused her to doubt if her feelings and symptoms were justified. Participants also mentioned that they consider if the mourner has family, e.g., a partner and/or children, they can possibly fall back on.

3. Symptoms of complicated grief

Many symptoms were mentioned as indicator that a person is experiencing complicated grief. These symptoms can be subdivided into physical, emotional and behavioral symptoms. An important note is that the person in grief must suffer from these symptoms to a disabling degree.

3.1 Physical symptoms

Most physical symptoms mentioned were symptoms similar to the symptoms of depression. Mentioned symptoms include concentration problems, sleeping problems with as a possible consequence fatigue and a decreased appetite with as a possible consequence weight loss.

Almost all participants also mentioned stress related symptoms, which manifest mostly as constant tension in the body. This might result in muscle pains, stiffness, or not being able to relax. The abnormal amount of tension was also, by one participant, noticed by the patient being very jumpy: "*oh yeah, the cat causes something to fall on the windowsill, and I really thought a bird flew through the window, so to speak, [imitates shocking reaction] the way she reacted there. I say 'what's happening?', 'oh yes, it's nothing, I had uh...". I could also just see how incredibly much tension there was in her body".* In more extreme cases, the stress was said to cause dizziness, hyperventilation and heart palpitations.

Sleeping problems were also mentioned frequently, either relating to depression or stress, or because of traumatic events. The person in grief is then not able to fall asleep because of either reliving these traumatic memories or because of the fear (if one falls asleep) to relive these traumatic memories.

3.2 Emotional symptoms

For most participants, the mourner being flooded by emotions was a sign for abnormal grief. It was mostly noticed by the person not being able to talk about subjects regarding the grief because of instantly crying when thinking about it. An example was mentioned about a man not being able to talk about his feelings of grief: *"…now several months later [after the loss], he is so full of emotion and he only has to think about it and he already bursts into tears; he's very worried about it and can't handle it at all...".*

If the cause of the grief was experienced as traumatic, a person might relive the traumatic memories which then can cause behavioral symptoms like avoiding certain places.

Already mentioned as physical symptoms, depressive symptoms are frequently mentioned in complicated grief and can also manifest emotionally. Some people experience depressive feelings, like somberness. Next to that, they can feel lonely, which can also be caused by not being able to communicate about their feelings regarding the grief.

3.3 Behavioral symptoms

The most seen behavioral symptom of complicated grief was either avoidant behavior, which can be related to the mentioned risk factor of having a passive coping style, or ruminating. These symptoms are the opposite of each other but are both seen as unhealthy behavior in grieving. One participant mentioned about this: *"...that all the time you only focus on the loss and all the emotions that come with it, yes. So, I think indeed it can go two ways, that makes the mourning stagnate: either avoiding it completely, or indeed collapsing completely and not doing anything else at all".*

Showing avoidant behavior was mostly mentioned as a sign of not being able to properly deal with emotions and feelings regarding the grief or as a sign of posttraumatic stress. The person can act like nothing is going on, even being overly happy despite the situation, which

can also indicate acceptance problems. Another example of avoidant behavior was related to traumatic stress, where the person avoids certain places or situations because of the fear to relive certain traumatic memories.

Even though ruminating about the depressive feelings or the grief, were the person actually constantly focuses on the negative feelings and acts very depressed is behaviorally the opposite, it is also mentioned by participants to be avoiding the feelings of grief. One participant stated that: "*although I have to say that the way I often approach it, worrying is also a form of avoidance. Namely a form of avoiding feeling: worrying is very much in your head, but your body also participates and [so do] your emotions. But because of those two... yes you can avoid in your mind, so start worrying a lot, and avoidance in how you act, so that you don't have to think about anything".* Another participant described this as taking on a victim role and therefore not being able to make progress in their grief.

Another behavioral symptom, often because of the emotional symptom of being flooded by one's emotions, is not being able to communicate about subjects regarding the grief (e.g., the deceased person or the illness diagnosed).

Further, experiencing limitations in daily life because of physical and emotional symptoms might also indicate complicated grief. A person might no longer be able to follow (physical) therapy and thus also stagnate in their revalidation process, or not be able to go to work or social events.

4. Diagnosis of complicated grief

4.1 Methods for diagnosis

Several participants mentioned that at the start of the intake, they make a timeline with the patient to create an overview of certain events and help decide what kind of therapy would be most effective. A participant mentioned: *"For example, I use a timeline, and ask hey, what actually happened? And then, if it turns out to be necessary, you could say from that timeline, well, there are some traumatic events, for example, and then you could give trauma treatment".* Further, they discuss and determine the complaints of the patient and their goals for the treatment: *"…And also, what goals they actually have in treatment. So, what really matters, what needs to change or what they want to work on. And based on that, we actually look at which form of therapy best suits this.".*

To determine their symptoms, the patients must fill in some questionnaires. Questionnaires mentioned were the Four-dimensional Symptom Questionnaire (4DSQ) and the Beck Depression Inventory (BDI). Also mentioned as a guideline for diagnosing mental disorders or complicated grief was the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Another aspect of the intake was the medical history of the patient, including past treatment: not only for deciding if and which therapy is necessary, but also to discuss if they can use what they learned in therapy in the past, now.

4.2 Key factors in differentiation between normal and complicated grief

Most symptoms of complicated grief can also be experienced by someone with a normal grieving process. However, the participants mentioned that looking at these symptoms, there were two important factors that differentiated a normal grieving process from an abnormal grieving process: the time aspect and the degree of impairment of functioning.

4.2.1 Time aspect

If the symptoms arise at or are still impairing after a certain period since the loss, it could indicate complicated grief. More than one participant mentioned that for them, this depended on the context but was mostly one year after the loss. For the participants, the time criterium also counts if the symptoms of grief only arise after this period, not being present before. According to Worden (2018), this manifestation of grief would then be termed delayed grief. The DSM-5 criterium states that the loss must have happened at least six months ago to diagnose Prolonged Grief Disorder.

4.2.2 Degree of impairment of functioning

Two subcategories of impairment were concluded from the data. For both, the degree of impairment is especially important.

The first indication is if the impairment causes a stagnation in physical recovery, which is a possibility in the case of grief because of a health problem like chronic illness or in the revalidation process after for example a brain bleed. An example mentioned was if the person has the behavioral symptom of not being able to go to physical therapy, and therefore stagnates in his/her revalidation process.

Secondly and more general, is the degree of impairment in daily functioning. This is mentioned in all cases of grief and can manifest itself in many ways that are concerning. Frequently mentioned examples are not being able to go to work and avoiding social activities. Avoiding social activities can be due to depression, but it was also mentioned that some people experience a lot of guilt after a loss and thus feel guilty to do normal, fun things in life. Overall, it is important that the mourner does not experience limited quality of life because of impairment in daily functioning.

5. High-risk cases

Detecting and dealing with high-risk cases specifically, were not the main focus of this research. Since however these subjects are complex but important to detect correctly, further research should be conducted with psychologists specialized in this area to be able to make a sufficient recommendation about the detection of high-risk cases. Since the high-risk cases of having suicidal thoughts and behavior and substance abuse are seen as symptoms of depression, the results are still used in this research to draw possible conclusions and make a recommendation on the detection of the need for professional help in grief.

Some symptoms, caused by grief, might call for immediate help. In the interviews, two forms of high-risk cases were mentioned: the patient disabusing substances and the patient having suicidal thoughts or even showing signs of possible suicidal behavior. Noticeable is that both cases were seen as an avoidance strategy, thus relating to the previously mentioned risk factor of having a passive and avoiding coping style.

5.1 Substance abuse

Substance abuse is seen as an avoidance strategy, dependent on the feelings one wants to avoid. One participant further explained: *“smoking weed is to be able to relax and drinking is to think less”.*

5.2 Suicidal thoughts and behavior

By more than one participant, it was mentioned that they do not find having suicidal thoughts worrisome in itself. It is firstly also an avoidance strategy and secondly, having suicidal thoughts was more seen as a common symptom of depression, which then again can be a manifestation of complicated grief. Thinking about suicide is also one of the subjects in the depression questionnaire. For some, it just might feel as the only way out, and *“it’s more of a reassurance, that ‘well, if nothing helps, that's another solution’”.* A division was also made between passive and active suicidal thoughts: active thoughts were mentioned to be thoughts like *“I want to die”* and passive thoughts were said to be like *“if I died, I would not mind”.*

Concluding, participants found that help is needed, however not necessarily urgent help. Only when there is actual danger for the patient, for example when they already made plans, the participants would call for a ‘crisis service’ that estimates the danger and checks if a person would need medicine or get hospitalized. However, due to the sensitive nature of the subject of suicide, it is important that more research is conducted about this with more specialized professionals to be able to draw clear conclusions.

5.3 Risk estimation

For substance abuse, the reason they use it, what they use and how well they can control it are important. The reason they use it, might relate to the bad coping mechanism of avoiding one’s feelings: avoidant behavior is one of the behavioral symptoms of complicated grief and using to not ‘feel’ is thus a behavioral symptom. Then, it also depends on how well they can control it. One participant stated that *“...if someone actually comes to appointments [under the influence of the substance] and such, that is of course very challenging. But if someone says 'yes, I do use, for example, maybe too often, but I can still function fine or I can leave it alone', then ... but if someone is really using it heavily... [then it would be worrisome]”.* Lastly, the risk estimation also depends on the substance they use.

If someone is having suicidal thoughts, this will show up in the depression questionnaire. If this is the case, participants mentioned that they will ask what those thoughts look like: “*if*

someone is suicidal, you first ask: what do those look like, thoughts of death?". From there, they will ask and try to deduct how concrete these plans are, and if the person is likely to undertake action. Next to that, they will look at the familial burden of suicides: *"that is also another factor that you have to take into account that it may also be more likely that someone does that".* Then lastly, it is also mentioned that it is important to know how well someone thinks they could handle the urge if it would come up intrusively: *"If someone can't guarantee you that I can turn to so-and-so or do this and this, if someone really says, 'I really don't know if I can still do that, because if it hits me then I can't...', then you also have a high risk as well".*

6. Treatment for complicated grief

6.1 Forms of therapy

6.1.1 Eye Movement Desensitization and Reprocessing Therapy

When the patient is showing signs of posttraumatic stress, Eye Movement Desensitization and Reprocessing (EMDR) therapy is needed. It was mentioned that this is not per se to work through the grief, but more of a solution to the stagnation of the grief: people cannot continue their mourning because of traumatic events and need to be able to deal with this to continue their grieving process. A participant mentioned about this the following: *"…sometimes people have images of the last moments of someone who has passed away, that they just can't get away from …. [it hinders the mourning] or picking up your life in the sense that dealing with the loss is not possible, because it always remains in the foreground, then you could use EMDR therapy to take some charge off so that the grieving process can flow again, so to speak.".*

6.1.2 Other forms of therapy

Two other forms of therapy mentioned were Cognitive Behavioral Therapy (CBT), specifically Writing Therapy, and Exposure Therapy. CBT is mentioned to be used when there are problems in communicating with others about the grief, problems in setting up and communicating boundaries and problems in accepting the cause of the grief. Writing Therapy is a form of CBT, and therefore can be used for the same reasons. Writing Therapy was also mentioned to be used as a form of Exposure Therapy, if the patient was showing avoidant behavior: *"...what we sometimes do is have people write a letter about what happened, how they experience it and the consequences, you could see this as a kind of exposure. I think that's also what they do with stagnant grief, is exposure first, so working through the grief and working on it a lot, and therapy".*

6.2 Completing treatment

Most participants mentioned that treatment is seen as successful, despite that the person might still be grieving, when the patient has the feeling they have the tools to continue their daily lives and process their grief in a normal way. This is because grief is something that does not necessarily go away, but is something you have to learn to live with. One participant stated that *"the sadness or pain may change, but that doesn't mean it will ever go away'* and *'…it can sometimes overtake you again in moments, that you are able to deal with it for years and that something suddenly happens that makes it hit you right in the face again: and that you do think about it and again get sad".*

Results II – Detection possibilities

Following the results of the interviews, the first part of the research question can be answered: *when is there professional help needed in the grieving process?* Knowing what needs to be detected, the second part of the research question can be researched: *how can this be detected in an online tool that aids people in their grieving process?* Therefore, in this section, literature research will be discussed about possible (technological) options that could be implemented in the online tool to detect abnormalities in the grieving process.

Machine learning algorithms

Research has been conducted to be able to both identify and characterize the degree of depression and suicidal ideation from user-generated content in social media. In these studies, machine learning and statistical analysis methods are applied on data extracted from social media platforms to differentiate between depressive and non-depressive posts and communities (Jain et al., 2019). The degree of depression was also identified using variations of valence values based on the mood tag. These studies show overall good results: research done by Fatima et al. (2017), resulted in 90% accuracy for the classification of depressive post, 95% accuracy for the classification of depressive communities and 92% accuracy for the classification of the depression degree.

Examples of features used in the feature set from the research by Fatima et al. (2017) on the detection of depression degree and suicidal ideation are:

- Positive emotion (love, nice, sweet)
- Negative emotion (hurt, ugly, nasty)
- Anxiety (worried, fearful, nervous)
- Cause (because, effect, hence)
- Informal language (shit, OK, hmm)

This could be possibly used to diagnose both Major Depression and other mental health disorders, differentiate between the depression stage of grief and actual Major Depression (by classifying the degree of depression), and diagnose complicated grief (or Prolonged Grief Disorder) by making some adjustments in the feature sets and the used mood tags. It is also useful to detect high-risk cases, mostly by identifying suicidal ideation which has already been successfully done. Since the differentiation between depression and complicated grief lays mostly in the time aspect (time since the loss) and the degree of impairment, and the symptoms are similar, these methods might be successful for the diagnosis of complicated grief as well.

Questionnaires

Multiple questionnaires were mentioned in the interviews that help the professionals to get a general idea of someone's mental state before or during the intake and discuss possible diagnoses and referrals. Questionnaires that the participants mentioned were the Four-Dimensional Symptom Questionnaire (4DSQ), the Beck Depression Inventory (BDI). Further, the psychologists mentioned to use the Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5) for diagnostic criteria.

1. The Four-Dimensional Symptom Questionnaire (4DSQ)

The Four-Dimensional Symptom Questionnaire (4DSQ) is a 50-item self-report questionnaire, created to distinguish non-specific general distress from depression, anxiety and somatization. Somatization are physical problems that cannot be explained by something else (Terluin et al., 2006). The somatization symptoms measured also include

symptoms that have been mentioned during the interviews, like muscle pains, heart palpitations and dizziness.

The measure of distress is useful in complicated grief, since it measures the degree it interferes with daily functioning, which is according to the results found from the interviews an important indicator if someone has developed complicated grief. Depression and anxiety are also measured, which both include overlapping symptoms with complicated grief and in severe forms are a form of complicated grief, termed exaggerated grief (Worden, 2018).

2. Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI) is a 21-item self-report questionnaire, created to assess the degree of depression in individuals aged 13 years or older. The list helps assess depressive symptoms matching the DSM-IV criteria for major depressive disorder and consists of items related to hopelessness, irritability, guilt, and physical symptoms, such as fatigue, difficulty sleeping, or weight loss (Jackson-Koku, 2016).

3. Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5)

For this research, three disorders included in the Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5) are important. Firstly, Prolonged Grief Disorder (PGD). The diagnostic for criteria of PGD are described in the introduction of this report.

The second disorder important for this research is Separation Anxiety Disorder (SAD). This is often triggered by the loss of a loved one and a precursor of PGD (Colin Murray, 2020). According to Worden (2018), an anxiety disorder can be seen as a manifestation of complicated grief, also known as exaggerated grief.

The last relevant disorder is Major Depression. The difference between grief and depression lays mostly in the fact that depression is more persistent and grief comes in waves, which was also mentioned in several interviews. Next to that, the distinction often lays in that people with depression do not see a clear future for themselves, while bereaved people often do see that it eventually will get better (hopelessness). When there are suicidal thoughts present, which is relevant for both depression and grief, a distinction can also be made: thoughts relating to *'it is a possibility'*, mentioned in the interviews as avoidant coping, are more categorized in depression. However, thoughts relating to '*I want to reunite with the person I lost (by dying)'*, are more categorized in grief (Colin Murray, 2020). Depression can also be seen as exaggerated grief, so a form of complicated grief but not specifically Prolonged Grief Disorder (Worden, 2018).

Combining questionnaires and algorithms

Since it is the traditional assessment method, trusted by professionals, the use of questionnaires in the tool to asses possible abnormalities in the grief process would be a good option. The questionnaires, as mentioned by participants in the interviews, not only help the professional identify certain symptoms in the patient but can also aid the patient in their grief process by normalizing the feelings they have. In the research about the use of algorithms, questionnaires were also used to identify certain demographics that are risk factors of depression or suicidal ideation (Jain et al., 2019).

Research regarding using algorithms to detect mental health problems like depression, stated that the assessment by algorithms instead of questionnaires could give better results for detecting these problems. Most assessment now is carried out with questionnaires, that require a subjective response by the patient. These responses are influenced by the context, like the environment and the patients' relationship with the professional carrying out the questionnaire and might only give an idea of the patients' state of mind at that particular

time. The tool, however, can deliver user-generated content that is an actual expression of their own thoughts (not influenced by the questionnaire questions) over a longer period which thus represent the patients persistent state of mind better (Fatima et al., 2017). Next to that, the algorithms might also identify important risk factors for complicated grief.

Discussion

In this section, the results of the interviews and the literature research will be discussed and combined to form a recommendation for the detection of abnormal grief in the online tool. This includes the research about complicated grief, the results of the interviews about in practice experience of professionals and additional literature research about (technological) options for the detection in an online tool. Further, limitations of the study and recommendations for future research will be discussed.

Research has found that complicated grief can manifest itself in many ways. Three mental disorders included in the DSM-5 and ICD-11 are relevant for the detection of complicated grief: Prolonged Grief Disorder (PGD), Separation Anxiety Disorder (SAD) and Major Depression. According to Worden (2018), all can be categorized as specific manifestations of complicated grief. PGD however, only considers grief caused by the bereavement of a loved one, whilst during the interviews it came forward that there might be other causes for grief. Several participants mentioned that they often saw patients stagnate in their revalidation process, where the grief is caused by the loss of health or a part of their functioning. Another criterium of PGD is that the symptoms are not explainable by another mental disorder, for example Major Depression. However, Worden (2018) has stated that such problems are actually a manifestation of complicated grief, termed exaggerated grief. Therefore, it is important to not only detect symptoms of PGD but of complicated grief and all its manifestations in general.

Risk factors and symptoms to detect

Both symptoms and risk factors for the development of complicated grief were mentioned by the participants and are important to detect in the online tool. Many physical, emotional and behavioral symptoms were discussed in the results section. An important note is that the person in grief must suffer from these symptoms to a disabling degree.

Most important physical symptoms were complaints that resulted from an abnormal amount of stress. This was mentioned to manifest mostly as constant tension in the body, which might result in muscle pains, stiffness, or not being able to relax or sleep. In more extreme cases, the stress can also cause dizziness, hyperventilation and heart palpitations. Emotional symptoms were mostly symptoms related to depression and feeling flooded by emotion. This can result in the behavioral symptom of showing avoidant behavior, where the person for example is unable to communicate about their feelings of grief.

The risk factors mentioned for complicated grief overlap with the symptoms. Some risk factors are related to the event that caused the grieving process, while others are found in the personal characteristics of the bereaved. Overlap with certain behavioral symptoms of complicated grief is for example having a passive coping style and thus showing avoidant behavior. Because of this overlap and since the time criteria for PGD is only six months (since the loss), detecting risk factors can be useful in predicting this considering it can develop in a rather short period of time. Also, since the accuracy of detection is most likely not 100%, the additional detection of risk factors might help prevent the system from not detecting complicated grief while the person continues using the tool.

Important considerations

During the interviews, there were some interesting findings which are important to keep in mind for the detection of complicated grief. Firstly, DSM-5 states as first criteria for PGD that the event causing the symptoms must be bereavement. As previously mentioned, not only the detection of PGD is relevant since many professionals stated that grief is not always caused by the loss of a loved one.

Secondly, DSM-5 states that the symptoms are experienced to a disabling degree that causes impairment in important areas of functioning. Frequently mentioned examples of impairment in daily functioning in the interviews were not being able to go to work and avoiding social activities. Another important area of functioning found in the results is revalidation: e.g., not being able to follow physical therapy and thus stagnating in the (physical part of the) revalidation process. An important note mentioned by several participants about impairment in functioning was that an important indicator for complicated grief was if the cause for this were feelings of guilt after a loss. The person in grief then feels guilty towards the bereaved to do normal, fun things in life.

Another important finding is that mostly the anger and depression stage of the Five Stages of Grief theory have overlapping symptoms with complicated grief. Therefore, it is sometimes hard to differentiate between normal and complicated grief and thus knowledge of the stages of grief in practice is important for detecting grief stagnation.

Lastly, possible high-risk cases were discussed. These were found to be substance abuse and suicidal behavior. Suicidal thoughts were, by more participants, mentioned to not be worrying since it is a common symptom of depression. However, since these subjects are of a rather sensitive nature and urgent care might be needed, these cases should be researched more in-depth and with the help of professionals specialized in this area.

Detection methods

During this research, two ways to detect an abnormal grief process in an online tool were found: the use of machine learning and statistical analysis, and the use of questionnaires. The studies researching algorithms for detection of depression and suicidal ideation show a high accuracy for the classification of depressive posts, depressive communities and depression degree. This could be possibly used to diagnose Major Depression, differentiate between the depression stage of grief and actual Major Depression (by classifying the degree of depression), and diagnose (many forms of) complicated grief like PGD by making some adjustments in the feature sets and mood tags. It is also useful to detect high-risk cases, specifically by identifying suicidal ideation.

Two questionnaires were mentioned in the interviews that help the professionals to get a general idea of someone's mental state before or during the intake and discuss possible diagnoses and referrals. Questionnaires that the participants mentioned were the Four-Dimensional Symptom Questionnaire (4DSQ) and the Beck Depression Inventory (BDI). Further, the psychologists mentioned to use the Diagnostic and Statistical Manual for Mental Health Disorders (DSM-5) for diagnostic criteria of mental health disorders relevant for grief.

In the research about the use of algorithms, questionnaires were also used to identify certain demographics that are risk factors for depression or suicidal ideation. This could also be used in the questionnaires for complicated grief. Certain risk factors found to be important for the development of complicated grief in the interviews that might be detected using questionnaires, are:

- Age of both the griever and the loved one lost
- (Medical) history
- Event that caused the grief (e.g., bereavement or health problem in case of revalidation)
- Context of event that caused the grief, e.g., cause of death)
- Presence of a support system

Next to that, other criteria that differentiate complicated grief from normal grief could also be (partly) detected using questionnaires, for example:

- Time aspect (how long ago did the cause of the grief take place)
- Degree of impairment of functioning

Questionnaires might also be useful in gaining information about substance abuse and suicidal ideation and making a risk estimation about this.

Since the responses of questionnaires can be influenced by the context, like the environment and the patients' relationship with the professional carrying out the questionnaire and might only give an idea of the patients' state of mind at that particular time, the use of a combination of algorithms and questionnaires would be the most useful option for detection in this case. The tool can deliver user-generated content that is an actual expression of the thoughts of the bereaved over a longer period which thus represent their persistent state of mind better. Next to that, the algorithms might also be able to identify important risk factors for complicated grief.

Next to diagnosing possible abnormalities in the grieving process, the tool might also be used for forming a therapy recommendation. Participants in interviews mentioned certain criteria they look at when deciding what therapy to use for the patient. Three options were mentioned: Cognitive Behavioral Therapy (CBT), Exposure Therapy and Eye Movement Desensitization and Reprocessing (EMDR) therapy. EMDR therapy is used when the patient shows signs of posttraumatic stress. People can sometimes not continue their mourning because of traumatic events and need to be able to deal with this to continue their grieving process, because of for example recurring images of the last moments of someone who has passed away.

Cognitive Behavioral Therapy (CBT), specifically Writing Therapy, was mentioned to be used when there are problems in communicating with others about the grief, problems in setting up and communicating boundaries and problems in accepting the cause of the grief. Writing Therapy is a form of CBT, and therefore can be used for the same reasons. Writing Therapy was also mentioned to be used as a form of Exposure Therapy, which is especially needed if the patient was showing avoidant behavior: This can then be for example in the form of writing a letter about their feelings. Since the tool would detect certain criteria for the diagnosis, these criteria can also be used to make a recommendation for professionals of what therapy is needed.

Lastly, the tool might also be used after the treatment of complicated grief. Most participants mentioned that treatment is seen as successful, despite that the person might still be grieving, when the patient has the feeling that they have the 'tools' to continue with their daily lives and process their grief in a normal way. Participants stated that while the sadness or grief may change, that doesn't necessarily mean it will ever go away and it might sometimes overtake you again in moments because of a certain event. Therefore, such a tool to aid people in their grieving might also be of use for people who have experienced complicated grief in the past, since they run the risk of recurring complicated grief. Further, it might prevent people with a normal grieving process from developing complicated grief without the help of a professional.

Limitations and future work

The first aspect of this research that might be improved in future research is the sample size of the study. It was hard to find participants with a professional background in a relative short amount of time. For this study, a total of five participants was sufficient but a more diverse

sample would give better representation of in practice information about grief. The inclusion of e.g., general practitioners, people who have experienced complicated grief or people in close contact with people diagnosed with complicated grief could give additional relevant information about how to detect abnormal grief in practice. A second aspect for improvement are the subjects discussed during the interviews. Future researchers might ask the participants about their opinion on the use of an online tool in grief and how this would work with people who experience or are at risk of experiencing complicated grief.

Next to that, possible high-risk cases should be researched further and more in-depth, since the subjects mentioned in this research are of a rather sensitive nature and urgent care might be needed.

Eventually, when the online tool would be in use, a mock experiment could be conducted to test the accuracy of detection of abnormal grief processes in the online environment.

Conclusion

In this research, both possible abnormalities in grief and methods to detect these abnormalities in an online environment were discussed. Considering the time since the event that caused the grief took place and the degree of impairment in functioning were found to be the most important factors in the differentiation between normal and abnormal grief, these criteria should be detected for all forms of complicated grief additional to Prolonged Grief Disorder. The best method for detection was found to be a combination of questionnaires and detection algorithms using feature extraction and mood tags. The possibility of detecting an abnormal grieving process during the use of the online tool, would create the opportunity for people at higher risk for complicated grief to use the tool in a safe way without the supervision of a therapist. Since possible consequences of complicated grief like substance abuse or suicidal behavior might need more urgent care, the detection of these cases needs to be further researched.

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