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ORIGINAL RESEARCH

Complicated grief knowledge and practice: a qualitative study of general practitioners in Ireland

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Objective: Complicated grief is a debilitating condition that individuals may experience after losing a loved one. General practitioners (GPs) are well positioned to provide patients with support for grief-related issues. Traditionally, Irish GPs play an important role in providing patients with emotional support regarding bereavement. However, GPs have commonly reported not being aptly trained to respond to bereavement-related issues. This study explores GPs' current knowledge of and practice regarding complicated grief.

Methods: A qualitative study adopting a phenomenological approach to explore the experiences of GPs on this issue. Semi-structured interviews were carried out with a purposive sample of nine GPs (five men and four women) in Ireland. Potential participants were contacted via email and phone. Interviews were audio-recorded, transcribed and analysed using Braun & Clarke's (2006) model of thematic analysis.

Results: GPs had limited awareness of the concept of complicated grief and were unfamiliar with relevant research. They also reported that their training was either non-existent or outdated. GPs formed their own knowledge of grief-related issues based on their intuition and experiences. For these reasons, there was not one agreed method of how to respond to grief-related issues reported by patients, though participants recognised the need for intervention, onward referral and review.

Conclusions: The research highlighted that GPs felt they required training in complicated grief so that they would be better able to identify and respond to complicated grief.

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Key words: Complicated grief, general practitioners, knowledge and practice, qualitative.

Introduction

Grief is a natural response to the loss of a loved one, and for most people this grief abates over time. There is no evidence to suggest that routine intervention for uncomplicated grief is either warranted or useful (Parkes 1998; Schut & Stroebe 2005). However, it is estimated that approximately 10% of people develop complications in their grieving process (Lundorff *et al.* 2017). These people continue to experience intense yearning for the deceased person, often accompanied by functional impairment (Rosner *et al.* 2011), impaired health and increased risk of mortality (Stroebe *et al.* 2007). Such a grief response is variously named as complicated grief, persistent complicated bereavement disorder and prolonged grief disorder and there is much evidence to suggest that it can benefit from professional intervention (Shear *et al.* 2005; Wagner *et al.* 2006; Rosner *et al.* 2015; Boelen 2016).

Some bereaved people may be reluctant to seek help from professionals, including their general practitioner (GP), for fear of their grief being medicalised (Nic an Fhailí *et al.* 2016). Similarly, GPs may be equally fearful about medicalising a normal life event (Nagraj & Barclay 2011). However, for many bereaved people, the GP is the first port-of-call for support (Bergman & Haley 2009; Ollerenshaw 2009; Ghesquiere *et al.* 2013) and in this context, GPs have been identified as an accessible and affordable source of support (Clark *et al.* 2006). A systematic review examining professionals' engagement with complicated grief found that GPs held 'gatekeeper status' (p. 1454; Dodd *et al.* 2017). GPs often have prior knowledge of the bereaved person and their family history, so the role they play in the person's bereavement care is vital (O'Connor & Breen 2014). GPs are therefore perfectly positioned to provide patients with the necessary support for grief-related issues (McGrath *et al.* 2010). In Ireland, access to general practice and health services is means tested, and if deemed eligible, and individual is entitled to free GP access only, or free GP and general health services depending on level of assessed income of the individual. A study of youth mental health in Ireland found that GPs

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were the most likely source of formal support and the primary access point (Dooley & Fitzgerald 2012). Also, in Ireland the National Office for Suicide Prevention recommends engaging with one's GP as the first step in help-seeking following bereavement (2016).

However, despite their role in bereavement care, research suggests that GP training in this area is limited (Charlton & Dolman 1995; Lloyd-Williams & Lloyd-Williams 1996; Low *et al*. 2006). The UK survey by Lloyd-Williams found that only 30% of GPs had received training on grief and, of that 30% most of them found their training to be inadequate. A more recent study by O'Connor and Breen (2014) highlights that GPs lack clarity and consistency on how to approach bereavement care. A systematic review on bereavement care in primary care found it to be 'frequently overlooked in clinical practice and largely ignored in the primary care scientific community' (Nagraj & Barclay 2011, p. e47). Consequently, those in need of intervention in their grieving process may not receive the help they need (Ghesquier *et al*. 2014). In the Irish context, the issue of grief, including awareness of 'normal and abnormal grieving processes', is included in the end of life module of the GP curriculum (Irish College of General Practitioners [ICGP] 2019, p. 208). However, this is a small part of a very broad curriculum. Additionally, the Irish Hospice Foundation runs specific courses for relevant clinicians in the assessment and treatment of complicated grief. Looking to other countries, the ICGP curriculum is similar to the Royal College of General Practitioners (2019; https://www.rcgp.org.uk/training-exams/training/gp-curriculum-overview.aspx) curriculum for GPs in training. The Royal Australian College of General Practice curriculum for trainee GPs deals with grief and bereavement in a more comprehensive manner, with specific skills development for the assessment and treatment of complicated grief (RACGP 2016; https://www.racgp.org.au/education/education-providers/curriculum/2016-curriculum).

Acknowledging that most people do not require professional intervention in their grieving process and taking account of the pivotal position of the GP in the provision of care following bereavement, the aim of this study was to investigate knowledge of and engagement with complicated grief in a sample of GPs working in Ireland.

Method

Design

This qualitative study adopted a phenomenological approach to explore GPs' knowledge of and practice regarding complicated grief. The design and implementation of the study was influenced by O'Brien *et al*. (2014) reporting standards. The research was conducted in the context of a larger funded study on the knowledge, attitudes, skills and training regarding complicated grief among mental health professionals. The researchers on the main study were a psychotherapist, a clinical psychologist, a psychiatrist (representing the target groups for the main study) and an academic researcher. This complementary element was developed by the team and implemented by a postgraduate psychology student as part of their degree. While the student did not have professional experience of the issue of complicated grief, they were supported in conducting the research by an experienced team.

Participants

The target population was GPs working in the greater Dublin area in Ireland, who were willing to take part in an interview regarding complicated grief. While it was initially planned to contact potential participants based on publicly available contact information in one area of Dublin, this proved to be unsuccessful and a purposive approach drawing on snowball sampling was added, with participating GPs asked to recommend the research to peers. As a result, nine GPs (five men) agreed to participate, reflecting the gender patterns reported in a survey of GPs in Ireland (Kelly *et al*. 2019). Two of the GPs worked in rural areas of Ireland, with the rest working in urban areas. This regional breakdown is somewhat different to the patterns reported by O'Kelly *et al*., though differences in the classifications of the two studies prevent a direct comparison. To ensure confidentiality only limited demographic information was recorded and so no other details are available.

Data collection

Data were collected via semi-structured interviews. Noting that GPs were not likely to be in a position to take part in an in-depth interview, the focus was on the issue of complicated grief rather than the wider context of typical grief and related difficulties. The topic guide drew heavily on the materials from the wider study, which was influenced by the findings from a systematic literature review (Dodd *et al*. 2017). The topic guide focussed on knowledge of complicated grief and the steps taken to identify and provide the patient with the necessary assistance. It investigated their familiarity with relevant research as well as their knowledge of the debate on inclusion of complicated grief in DSM-5 (American Psychiatric Association 2013), their previous training in the area and their interest in participating in future training in complicated

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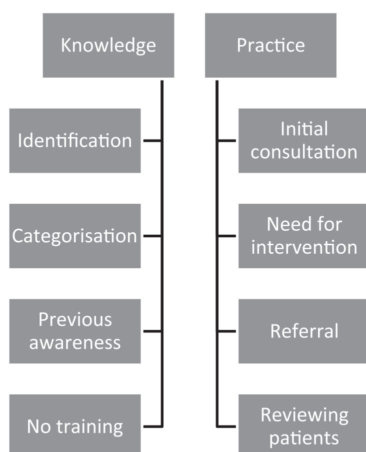

Fig. 1. Overview of core topics and related themes.

grief. While the inclusion of DSM-5 might be less directly relevant to GPs, this was an important aspect of the wider study and also central to the study given the inclusion of prolonged grief-related disorder (a form of complicated grief) in DSM.

Procedure

Ethical approval was received from University College Dublin and the Irish College for General Practitioners. GPs were provided with information sheets and consent forms. The interviews occurred in the workplace or another convenient location. Interviews were audio recorded, transcribed and checked for accuracy.

Analysis

A thematic analysis was carried out (Braun & Clarke 2006), which began with an initial reading and re-reading of each transcript. Codes were created from the transcripts, and then collapsed into categories to identify the emerging themes. For example, 'no protocol' 'intuition' and 'using mind' were collapsed together to form the theme 'no clear guidance'. A credibility check was carried out, by which two members of the research team developed candidate themes independently and met to discuss their interpretation of the data. Based on this discussion, more inclusive and objective themes were developed by reviewing, combining and collapsing the themes.

Results

The findings considered aspects of GPs' knowledge of complicated grief and their experience and views of practice. Figure 1 presents an overview of the topics examined and themes discussed by participants as they relate to the aims of the study.

Participants discussed their lack of knowledge regarding the ***identification of complicated grief.*** The GPs reported that they had no clear guidelines on aspects of grief and bereavement. They reported using their '*own mind*' (GP3), their '*intuition*' (GP4) while another stated that he did '*not have a protocol that I will go to. You know I would base it I on my, I suppose, experience*' (GP9).

Participants reported having to use their experience and intuition to ***create a categorisation of grief*** in order to determine the type of intervention needed. One GP reported '*dividing them into mild moderate or severe*' grief (GP1). Another based his identification on whether the grief response was what he termed a '*kind of a reactive grief*' (GP8) or he looked for '*clinical symptoms*'. Some GPs used the duration of grief as a means of categorisation, indicating that if the patient was still '*not functioning after about six months I would have the alarm bells up*' (GP4).

All participants reported ***limited previous awareness*** of complicated grief and the research into it. As a result, they had no previous knowledge of the debate regarding whether complicated grief should be included in DSM. However, some did express an opinion about the inclusion of complicated grief in DSM. Two GPs supported its inclusion, with one stating; '*I think it can be beneficial to have a label and then have an appropriate intervention which is often one of the difficulties* (GP4). One GP was opposed to the inclusion of complicated grief in diagnostic manuals and stated that '*I think medicalisation of grief is a mistake* . . . . *It is like medicalising happiness*' (GP3) and further stated that the medicalisation of grief will '*suit the drug companies and it will suit the psychiatric profession*'.

All the GPs stated that they had ***no training in complicated grief***. Some referred to their outdated exposure to grief issues during their undergraduate training which in some cases was some time ago. Many GPs interviewed expressed interest in training in complicated grief, '*Yeah probably I would*' (GP8), stating that they wanted the training to be '*nice and accessible and easy*' (GP9). However, two stated personal reasons for not being interested in the training. One of these stated '*I am not going for any exams again, I'm not going for any course. I've had enough*' (GP5).

In terms of practice regarding complicated grief, topics included consultation, intervention, referral and review. All GPs agreed that the ***initial consultation was central*** in deciding how, or if, to intervene. The majority explicitly described processes for consultation, including that they would '*talk to them*' (GP9) and '*take a full and complete history*' (GP6). During the consultation, the GPs queried the support available to the patient and the support required by the patient from the GP. In situations where the grief did not prompt undue clinical concern, they encouraged the patient '*to look to their family and friends for support*' (GP8). Also, in some

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cases the GP himself assumed the '*supportive role*' (GP9) or provided the person with '*sick leave*' *or* '*see if they need a home help or [assistance]*' (GP5).

There was broad agreement among the GPs regarding the ***need for intervention*** if the '*patient is an immediate danger to himself or to others*' (GP2) or '*if there's any issue of committing suicide*' (GP6). The presence of depression was also an important means of categorising the person's grief response. GPs were of the view that intervention was warranted '*if it becomes severe and it becomes depression*' (GP1) and '*if there's actually maybe elements of clinical depression present*' (GP3). The GPs also differed in their attitudes to the use of medication. Some GPs described routinely using medications, prescribing '*relaxing tablets*' (GP5) and '*antidepressants for a short period of time*' (GP1). However, one GP expressed a strong opinion against the prescription of medication as '*I don't think they work . . . . I think they cause addiction . . . Putting patient on anxiolytics causes added complications*' (GP3). Two other GPs, though open to medication as a resource, did not routinely use it, stating that they would try other forms of treatment before using medication.

When the presenting behaviour was of clinical concern the GPs were in agreement regarding the importance of ***referring the patient to the necessary support***. One GP encapsulated this sentiment stating that '*my role as a GP is to suss out those patients who need emergency help now and those who don't*' (GP2). However, access to service was a concern when making a referral and presented a challenge to the GPs. In some cases, access to service was dependent on the situation of the GP. For example, one participant's practice (GP9) was attached to a setting which offered counselling services. The GP was able to ensure that their patients' '[work] *life doesn't fall apart*' and could direct them '*towards assistance funds and to their [related] advisor services*' (GP9). This GP also acknowledged that the other GPs would not have this level of access. The remaining GPs corroborated this when they described access to specialist services as '*impossible*' (GP1), describing how they had '*to ring around like crazy to find a suitable place for this patient*' (GP6).

Participants differed on their attitude towards ***reviewing patients*** once they had been referred onwards. Many GPs suggested that the appropriate response to grief-related issues would be to '*see them at least within two weeks*' (GP8) while two stated that after the patient was referred there was '*no longer a need to [engage]*' (GP2).

Discussion

The aim of this research was to explore GPs' current knowledge of complicated grief and their practice in relation to it. The GPs had no previous knowledge of complicated grief as a concept and the identification of a grief response that required intervention appeared to be based on intuition and experience. Despite a lack of knowledge, the GPs in this study did describe some of their preferred practices and stressed the importance of the initial consultation. The GPs were in agreement about the appropriateness of referral to another agency or professional. However, access to services was seen as an issue, given its variability depending on location and context. In terms of training in complicated grief, all the GPs reported either having no training or described training that was outdated. This is likely to leave them ill-equipped to identify complicated grief and provide appropriate support. GPs expressed an interest in training but also stressed that this training needed to be readily accessible due to time limitations.

The research literature suggests that the use of a standardised instrument to identify complicated grief is important so that it is not wrongly classified as depression (Dodd *et al*. 2017). One such time-efficient instrument which might be employed is the Brief Grief Questionnaire (Shear *et al*. 2006), which has been recommended for use in healthcare settings (Simon 2013). Given the reliance on experience in decision-making about interventions, and in the absence of clear guidelines as to what constitutes complicated grief, it is likely that there will be variation in what classifies as a severe grief reaction. With the need for training highlighted, this might include the use of a standardised tool for identifying complicated grief, thus reducing the reliance on intuition and experience evident in this study.

In providing support the ' "goodness of fit" between donor activities and the needs of recipients' (p. 176; Vachon & Stylianos 1988) is crucial and, since the GP frequently has a knowledge of the person and the family, s/he is well placed to assess the quality of this fit. They may also be well-placed to take account of the important cultural and gender dimensions of support (Nurullah 2012). The GPs' view regarding the appropriateness of referral to another agency reflects published perspectives, where they report their role as both a service provider and a 'broker of services' (O'Connor & Breen 2014). However, in the absence of a clear referral pathway it is likely that some patients will be referred to private counsellors and access to this service, for the most part, is predicated on ability to pay, thereby creating a discrimination against those from more socially deprived backgrounds (Wiles *et al*. 2002). Of those who expressed an opinion, two GPs thought that the inclusion of complicated grief in diagnostic manuals would increase the patient's access to appropriate help.

The review of professionals' knowledge, attitudes, skills and training in relation to complicated grief by Dodd *et al.* (2017) reported the necessity for proactive

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follow-up on the part of the clinician, thus lessening the onus on the bereaved person. There is empirical evidence to suggest that bereaved persons most in need of services are the most reluctant to seek help (Lichtenthal *et al*. 2011) and so a proactive approach on the part of the clinician ensures that people will not go unrecognised. In the current study, while some of the GPs said that they would follow-up where there had been a referral, there was no suggestion that follow-up was routine. Main (2000) suggests that ongoing bereavement awareness of the part of the GP could be facilitated by recording the issue in patient notes.

Strengths and limitations

While the main limitation of this research is that it is a small exploratory study, its value as an initial exploration is important, given there has been limited research on GPs' knowledge and practice regarding complicated grief in Ireland. There were significant challenges in identifying a suitable sample, but this could possibly be explained by GPs' lack of familiarity with the research and a resulting unwillingness to participate. While the aim of qualitative research is not to generalise from a sample to a population in the traditional sense of the word, it is in a position to identify views that may be reflected in wider groups that are similar to the sample secured. We have no reason to believe that participants in this study differ from many GPs in Ireland, though we have reported limited demographics to prevent possible identification of participants. Nevertheless, it is important to note that snowball sampling can create a level of homogeneity in a sample. Despite this limitation, the study is strengthened by use of the O'Brien *et al.* (2014) guidelines to inform the design and implementation of the study and by the rigour of the analysis conducted. A credibility check was carried out where two researchers identified and compared themes in a section of the text to avoid potential bias in the analysis.

Implications

General practitioners in Ireland, similar to physicians in earlier research, do not have extensive knowledge of complicated grief. However, their interest in training suggests a willingness to engage with their patients' grief issues. Taking account of the gatekeeper status of the GP in relation to bereavement services, training tailored to the needs of the GP would appear to be warranted. Such training might address the dual role held by general practitioners as both bereavement service providers and brokers of the service. Ideally, training in assessing differences in usual grief experiences compared to complicated grief would be initially developed as part of a GP training experience. More comprehensive assessment skills and possible treatment strategies may be more appropriate at postgraduate level, as reflected, for example, in the progressive Daffodil Standards, developed by the Royal College of General Practitioners (see https://www.rcgp.org.uk/daffodilstandards,Standard 7, Care after death). Recognising the scale of the present study, further research adopting a quantitative approach could examine these issues on a wider sample, allowing for examination of the factors that may influence GPs' experiences in relation to complicated grief.

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Conflicts of interests

None.

Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. Ethical approval for this study was granted by the Irish College of General Practitioners and the UCD School of Psychology Taught Masters Research Ethics Committee.

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References

American Psychiatric Association (2013). *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*. American Psychiatric Publications: Washington DC.

Bergman EJ, Haley WE (2009). Depressive symptoms, social network, and bereavement service utilization and preferences among spouses of former hospice patients. *Journal of Palliative Medicine* **12**, 170–176.

Boelen PA (2016). Improving the understanding and treatment of complex grief: an important issue for psychotraumatology. *European Journal of Psychotraumatology* **7**, 32609.

Braun V, Clarke V (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology* **3**, 77–101.

Charlton R, Dolman E (1995). Bereavement: a protocol for primary care. *British Journal of General Practice* **45**, 427–430.

https://doi.org/10.1017/ipm.2020.122 Published online by Cambridge University Press

Clark S, Marley J, Hiller JE, *et al.* (2006). A grief diagnostic instrument for general practice. *Omega – Journal of Death Dying* **52**, 169–195.

Dodd A, Guerin S, Delaney S, Dodd P (2017). Complicated grief: knowledge, attitudes, skills and training of mental health professionals: a systematic review. *Patient Education & Counseling* **100**, 1447–1458.

Dooley BA, Fitzgerald A (2012). *My World Survey: National Study of Youth Mental Health in Ireland.* Headstrong and UCD School of Psychology: Dublin.

Ghesquiere A, Shear MK, Duan N (2013). Outcomes of bereavement care among widowed older adults with complicated grief and depression. *Journal of Primary Care and Community Health* **4**, 256–264.

Ghesquiere AR, Patel SR, Kaplan DB, Bruce ML (2014). Primary care providers' bereavement care practices: recommendations for research directions. *International Journal of Geriatric Psychiatry* **29**: 1221–1229.

Irish College of General Practitioners (2019). *ICGP Curriculum for GP Training in Ireland*. Irish College of General Practitioners: Dublin.

Kelly M, Teljeur C, O'Kelly F, Ni Shuilleabhain, A, O'Dowd T (2019). *Structure of General Practice in Ireland.* Irish College of General Practitioners: Dublin.

Lichtenthal WG, Nilsson M, Kissane DW, *et al.* (2011). Underutilization of mental health services among bereaved caregivers with prolonged grief disorder. *Psychiatric Services* **62**, 1225–1229.

Lloyd-Williams M, Lloyd-Williams F (1996). Palliative care teaching and today's general practitioners – is it adequate? *European Journal of Cancer Care* **5**, 242–245.

Low J, Cloherty M, Wilkinson S, *et al.* (2006). A UK-wide postal survey to evaluate palliative care education amongst general practice registrars. *Palliative Medicine* **20**, 463–469.

Lundorff M, Holmgren H, Zachariae R, *et al.* (2017). Prevalence of prolonged grief disorder in adult bereavement: a systematic review and meta-analysis. *Journal of Affective Disorders* **212**, 138–149.

Main J (2000). Improving management of bereavement in general practice based on a survey of recently bereaved subjects in a single general practice. *British Journal of General Practice* **50**, 863–866.

McGrath P, Holewa H, McNaught M (2010). Surviving spousal bereavement: insights for GPs. *Australian Family Physician* **39**, 780–783.

Nagraj S, Barclay S (2011). Bereavement care in primary care: a systematic literature review and narrative synthesis. *British Journal of General Practice* **61**, e42–e48.

National Office for Suicide Prevention (2016). *You Are Not Alone: Directory of Bereavement Support Services*. Health Services Executive: Dublin.

Nic an Fhailí M, Flynn N, Dowling S. (2016). Experiences of suicide bereavement: a qualitative study exploring the role of the GP. *British Journal of General Practice* **66**: e92–e98.

Nurullah AS (2012). Received and provided social support: a review of current evidence and future directions. *American Journal of Health Studies* **27**, 173–188.

O'Brien BC, Harris IB, Beckman TJ, *et al.* (2014). Standards for reporting qualitative research: a synthesis of recommendations. *Academic Medicine* **89**, 1245–1251.

O'Connor M, Breen LJ (2014). General practitioners' experiences of bereavement care and their educational support needs: a qualitative study. *BMC Medical Education* **14**, 59.

Ollerenshaw A (2009). Internet toolbox for rural GPs to access mental health services information. *Rural and Remote Health* **9**, 1094.

Parkes CM (1998). Coping with loss: bereavement in adult life. *British Medical Journal* **316**, 856–859.

Rosner R, Bartl H, Pfoh G, *et al.* (2015). Efficacy of an integrative CBT for prolonged grief disorder: a long-term follow-up. *Journal of Affective Disorders* **183**, 106–112.

Rosner R, Pfoh G, Kotoučová M (2011). Treatment of complicated grief. *European Journal of Psychotraumatology* **2**, 7995.

Schut H, Stroebe MS (2005). Interventions to enhance adaptation to bereavement. *Journal of Palliative Medicine* **8**, 140–147.

Shear K, Frank E, Houck PR, Reynolds CF (2005). Treatment of complicated grief: a randomized controlled trial. *Journal of the American Medical Association* **293**, 2601–2608.

Shear KM, Jackson CT, Essock SM, *et al.* (2006). Screening for complicated grief among Project Liberty service recipients 18 months after September 11, 2001. *Psychiatric Services* **57**, 1291–1297.

Simon NM (2013). Treating complicated grief. *Journal of the American Medical Association* **310**, 416–423.

Stroebe M, Schut H, Stroebe W (2007). Health outcomes of bereavement. *The Lancet* **370**, 1960–1973.

Vachon ML, Stylianos SK (1988). The role of social support in bereavement. *Journal of Social Issues* **44**, 175–190.

Wagner B, Knaevelsrud C, Maercker A (2006). Internet-based cognitive-behavioral therapy for complicated grief: a randomized controlled trial. *Death Studies* **30**: 429–453.

Wiles R, Jarrett N, Payne, S, Field D (2002). Referrals for bereavement counselling in primary care: a qualitative study. *Patient Education & Counseling* **48**, 79–85.

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