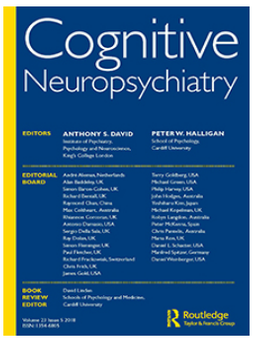

Cognitive Neuropsychiatry

ISSN: 1354-6805 (Print) 1464-0619 (Online) Journal homepage: https://www.tandfonline.com/loi/pcnp20

Social and emotional loneliness in Korsakoff's syndrome

Erik Oudman, Mirjam van Dam & Albert Postma

To cite this article: Erik Oudman, Mirjam van Dam & Albert Postma (2018) Social and emotional loneliness in Korsakoff's syndrome, Cognitive Neuropsychiatry, 23:5, 307-320, DOI: 10.1080/13546805.2018.1505607

To link to this article: https://doi.org/10.1080/13546805.2018.1505607

COGNITIVE NEUROPSYCHIATRY
2018, VOL. 23, NO. 5, 307–320
https://doi.org/10.1080/13546805.2018.1505607

Routledge
Taylor & Francis Group

Social and emotional loneliness in Korsakoff's syndrome

Erik Oudman [a,b], Mirjam van Dam [a,b] and Albert Postma[a,b]

[a]Experimental Psychology, Helmholtz Institute, Utrecht University, Utrecht, Netherlands; [b]Lelie Care Group, Slingedael Korsakoff Center, Rotterdam, Netherlands

ABSTRACT

Introduction: Loneliness is the subjective negative evaluation of social participation and isolation. Emotional loneliness reflects the absence of close relationships, and social loneliness the absence of a social network. Although loneliness is a growing problem in modern society, studies about loneliness in patients with Korsakoff's syndrome (KS) in need of chronic care are currently missing.

Methods: Sixty-three KS patients in long-term care and their primary caregivers reported loneliness of the patients on the De Jong Gierveld Loneliness Scale.

Results: A majority of KS patients reliably reported to feel lonely on both a social and emotional level of loneliness. The caregiving professionals rated loneliness of the patients even higher. Patients that had stayed in the clinic for a longer time tended to report less social loneliness, while caregivers reported less emotional loneliness in those patients. The KS-specific neuropsychiatric symptom of confabulations and a lack of social visits had a negative impact on social loneliness as perceived by the caregivers.

Conclusion: Loneliness is a large problem in patients with KS that live in a long term care facility. Social loneliness can be positively influenced by creating possibilities to interact with other people, although the severity of the neuropsychiatric aspects of KS could compromise the presence of those interactions.

ARTICLE HISTORY
Received 10 October 2017
Accepted 22 July 2018

KEYWORDS
Alcoholism; Korsakoff syndrome; long-term care; loneliness

Introduction

Loneliness is an individual's subjective and negative evaluation of social participation and isolation (De Jong Gierveld & Van Tilburg, 2006). The concept reflects a mismatch between the quantity and quality of existing relationships on the one hand, and relationship standards on the other (Perlman & Peplau, 1981). Several studies have shown that people can feel lonely in a crowd or can be happy alone (Bury & Holme, 1990; De Jong Gierveld, Kamphuis, & Dykstra, 1987; Holmén, Ericsson, & Winblad, 2000). Loneliness can therefore be differentiated from social isolation, which denotes the objective characteristic of being alone. From both a theoretical and statistical perspective two essential aspects of loneliness can be distinguished (Weiss, 1973). Social loneliness refers to the absence of a social network of substantial subjective quantity and quality, while emotional loneliness reflects the absence of subjectively experienced intimate relations (De Jong Gierveld & Van Tilburg, 2010; Weiss, 1973).

CONTACT Erik Oudman f.a.oudman@uu.nl, e.oudman@leliezorggroep.nl

A recent study in the elderly, indicated that common factors associated with both forms of loneliness are being widowed, a low well-being, a low self-esteem, and a low-income. Other factors do only relate to social loneliness, such as being male, low contact with family or friends, and low activity levels (Dahlberg & McKee, 2014). Also an unfulfilled need in the network of support givers is related to social loneliness (Dykstra & Fokkema, 2007). Again other factors selectively relate to emotional loneliness, such as high activity restriction, and a non-receipt of informal care (Dahlberg & McKee, 2014). In younger participants, also sex and love satisfaction are predictors for specifically emotional loneliness (Neto, 2015). Not having a partner is an important predictor for emotional loneliness (Dykstra & Fokkema, 2007).

Loneliness is a growing problem in modern society, most specifically in aging. Around 25% of the population of 55 years and older experiences loneliness and numbers are even higher for frail elderly (Snel & Plantinga, 2012). Research has shown that medical conditions such as poor vision, hearing problems, lung disease, and arthritis lead to more feelings of loneliness (Korporaal, Broese van Groenou, & Van Tilburg, 2008; Penninx et al., 1999; Savikko, Routasalo, Tilvis, Strandberg, & Pitkala, 2005). In turn, loneliness is associated with massive implications for physical and mental health in young and older adults, such as a shortened life-span, increased cardiovascular risks, and depression (Heinrich & Gullone, 2006; Luanaigh & Lawlor, 2008; Wilson et al., 2007; De Jong Gierveld & Van Tilburg, 2010). Multiple longitudinal studies have suggested that loneliness is a primary risk factor for the development of cognitive disorders such as dementia (Holwerda et al., 2014; Tilvis, Laitala, Routasalo, & Pitkäla, 2011; Wilson et al., 2007). In patients with the earliest symptoms of Alzheimer's disease such as amyloid changes in the brain, loneliness was more frequently observed (Donovan et al., 2016). Also, cognitive decline has been suggested as one of the risk factors to develop severe loneliness, suggesting an adverse relationship (Zhong, Chen, & Conwell, 2016).

Because of the severity and its comorbid consequences, loneliness in patients with cognitive impairments needs more attention than it has received to date (Holmén et al., 2000). Patients with cognitive problems are often reported to experience a lost sense of grip on the situation and are often socially isolated, likely to be leading to a sense of loneliness (Haj, Jadri, Laroi, & Antoine, 2016). Recently, McLean, Jarus, Hubley, and Jongbloed (2014) observed that non-employed, community-dwelling patients with moderate to severe traumatic brain injury (TBI) and loneliness experienced less social support and social integration than patients that did not experience loneliness, although such a relationship with objective social isolation was not clear. A lost sense of grip is particularly striking in institutionalised patients, for example, patients that reside in a nursing home because of severe cognitive disorders (Nyqvist, Cattan, Andersson, Forsman, & Gustafson, 2013). In one particular group of patients, namely patients suffering from Korsakoff's syndrome (KS), loneliness has not gained any interest so far. This is particularly striking since there seems to be a complex interplay between loneliness and chronic alcoholism. Mild consumption of alcohol leads to lower feelings of loneliness, because of the social function of alcohol (Canham, Mauro, Kaufmann, & Sixsmith, 2016). Severe loneliness leads to alcoholism, but also severe alcoholism leads to loneliness (Akerlind & Hörnquist, 1992).

Korsakoff's syndrome (KS) is a form ofneurocognitive damage that can happen to the brain as a result of long-term heavy drinking. Alcohol abuse has been shown to have

dramatic direct neurotoxic effects and secondary effects through vitamin deficiencies, resulting in major cognitive decline (Kopelman, Thomson, Guerrini, & Marshall, 2009). Cognitive disorders are therefore very common in alcoholics, with estimates of 50% for the most severe chronic alcoholics (Copersino et al., 2012). The focus of this paper is to investigate social and emotional loneliness in one specific group of KS patients that live in a chronic care facility for severe KS. Currently this population has not been investigated regarding loneliness.

A central neuropsychiatric symptom in KS is the development of confabulations (Kopelman et al., 2009). Confabulations are a specific form of memory distortion, leading to the creation of fantasy memories regarding the own lives of KS patients (Borsutzky, Fujiwara, Brand, & Markowitsch, 2008). Spontaneous confabulations are incorrect statements or acts that are started by the patient without any direct triggers that lead to this behaviour. Provoked confabulations are triggered by questions or acts of the social surrounding (Rensen et al., 2015). Since confabulations are such a common symptom in patients with severe KS it is likely that it has major consequences for the development of loneliness. It is also possible that loneliness leads to the development of confabulations. Earlier research has indicated that confabulations could reflect the filling of gaps in memory, and are often emotionally motivated (Fotopoulou, Conway, & Solms, 2007).

Because of the severity of cognitive, psychiatric and somatic disorders, approximately 25% of patients suffering from severe KS require specialised facilities that provide full time care and support (Smith & Hilman, 1999). Estimating loneliness in patients with severe KS is relatively complex, since there are no standardised instruments available for this task. More specifically, it is still unknown whether patients with severe cognitive disorders due to KS are able to reliably and validly assess their own loneliness. Earlier research suggested that patients with severe KS in a chronic care facility generally underestimate their problems regarding quality of life or their psychopathological symptoms, possibly reflecting a lack of awareness (Egger, Wester, De Mey, & Derksen, 2002; Steinmetz, Theisen-Flies, & Federspiel, 2014). One way to deal with possible awareness problems is to incorporate both self-report and reports from a proxy on the feelings of loneliness of the patient, such as a healthcare professional. Since the reliability and validity are at stake in investigating loneliness in KS, it is particularly relevant to include multiple viewpoints on loneliness as well as multiple measurements of loneliness. In the current exploratory research project we therefore compared loneliness ratings from detoxified severe chronic alcoholics suffering from KS with ratings provided by acquainted healthcare professionals. The patients completed the questionnaire twice to control for problems regarding the reliability of the results. Our aim was to investigate the existence of feelings of loneliness in KS patients. Therefore we compared and contrasted measures of loneliness as perceived by the patient relative to loneliness as gauged by the healthcare professionals. We hypothesised strong feelings of social and emotional loneliness in this population, based on prior associations (Dahlberg & McKee, 2014; Dykstra & Fokkema, 2007). To further explore the results, we wanted to investigate whether indices of loneliness could partially be explained by general characteristics of the patient group, such as age, time since admission, mobility problems, incontinence, and confabulations.

Methods

Participants

Sixty-three inpatients (49 male, 14 female; mean age = 62.7; SD = 8.5) and their 14 primary responsible nurses of a long-term care facility for alcohol related cognitive disorders, "Korsakoff Center Slingedael", Rotterdam, The Netherlands participated in this study. All patients fulfilled the DSM-V criteria for alcohol induced major neurocognitive disorder (American Psychiatric Association, 2013) and had an extensive history of alcoholism, verified through medical charts. All patients had severe thiamine deficiency (Wernicke encephalopathy) before onset of KS. They had undergone neuropsychological assessment after at least six weeks of sobriety from alcohol, and were sober ever since. None of the patients had a diagnosed form of progressive dementia. Selected patients did not show neurological disorders (severe TBI, epilepsy, etc.) or acute psychiatric conditions (psychosis, major depression, etc.) interfering with the interviewing procedure. Participants were not suffering from a terminal illness or self-reported depression, as this could cause higher loneliness scores (Dahlberg, Andersson, McKee, & Lennartsson, 2015). All participants were able to read and speak Dutch. Participants did not receive financial compensation for their participation. Informed consent was obtained via the patient and a legal representative. Ethical approval was obtained by a local ethical committee.

Materials

The 11-item De Jong Gierveld Loneliness Scale (De Jong Gierveld & Kamphuis, 1985) was applied to investigate feelings of social and emotional loneliness. The social loneliness subscale consists of five positively worded items (e.g., "There are plenty of people that I can lean on in case of trouble"), whereas the emotional loneliness subscale comprises six negatively worded items (e.g., "I experience a general sense of emptiness"). For each item a participant needs to indicate whether the sentence is false ("no"), doubtful ("more or less") or true ("yes"). For the social loneliness scale, only "yes" answers are regarded as representing no indication for loneliness. For the emotional loneliness scale, only "no" answers are regarded as representing no indication of loneliness. Total scale scores range from 0 (not lonely) to 11 (extremely lonely). A total score of two or less is considered a pass (respondent is free of feelings of loneliness). A total score of three or greater is consistent with moderate or severe levels of loneliness (Sansoni, Marosszeky, Sansoni, & Fleming, 2010). Hence, scores on the loneliness scale are integral numbers (e.g., 2 or 3 rather than 2.1, 2.5). For the emotional loneliness scale, a score of 2 or greater is consistent with emotional loneliness. Also for the social loneliness scale, a score of 2 or greater is considered as an indication of social loneliness. Internal consistency reliability ($\alpha = .84$) was considered acceptable on the basis of Cronbach's alpha levels from a number of studies on the development of the loneliness scale.

The 20-item Nijmegen-Venray Confabulation List (NVCL-20) (Rensen et al., 2015) is a novel observation scale for professional care givers to indicate the existence of confabulations based on the patient's behaviour. Five items index spontaneous confabulations that occur without any obvious triggers, and three items index provoked confabulations that are triggered by questions or situations in which a patient feels compelled to respond.

Earlier evidence supported the validity of the instrument in assessing confabulations in severe KS due to KS (Rensen et al., 2015).

Procedure

Patients were recruited based on their willingness to participate in this research project. Participants were seen twice with a one week interval. On both occasions the participant was asked to complete the De Jong Gierveld Loneliness Scale. Within the same month and after completion of the scale, the primary responsible nurse (a healthcare professional) was asked to rate the loneliness of the patient with the same scale, but unfamiliar with the answers of the patient. Following administrations of loneliness, the professional caregiver was asked to fill in the NVCL-20 for all patients that were enrolled in the current project to index confabulations. Moreover, the healthcare professional was asked to indicate how often the patient would receive family, friends and acquaintances as visitors in the clinic in four categories: "never", "less than once a year", "more than once a year and less than once a month" or "more than once a month".

Results

Baseline demographics

Of the 101 patients who were admitted to the long-term care facility for severe KS (78 male), a representative sample of 63 patients was recruited to participate in this project (49 male). We included all the patients with an informed consent of a legal representative to approach the patients for a research project. Two male patients were excluded based on missing values in self-reports of loneliness. General characteristics of the remaining 61 patients are represented in Table 1.

Reliability of loneliness self-assessment

A moderate to high correlation was found between total self-assessments scores on the 11-item De Jong Gierveld Loneliness Scale of loneliness in the first and second week (Pearson's r (61) = .667, $p < .0001$, two-tailed) and there was no significant difference between both assessments ($t(60) = .20$, $p = .84$). Both total emotional loneliness scores (Pearson's r (61) = .649, $p < .0001$, two-tailed), and total social loneliness scores (Pearson's r (61) = .574, $p < .0001$, two-tailed) subscales showed sufficient reliability between both assessments. Moreover, there was no significant difference between T1 and T2 De Jong Gierveld Loneliness Scale scores regarding emotional loneliness ($t(60) = .29$, $p = .77$) and social loneliness ($t(60) = .65$, $p = .52$). Given that there was only a short period inbetween T1 and T2, during which no specific changes in daily routines occurred, the absence of any difference between T1 and T2 further supports the notion of sufficient reliability of self-reported emotional and social loneliness instruments.

Self-perceived and healthcare-perceived loneliness

72.1% of the KS patients reported to feel lonely on the De Jong Gierveld Loneliness Rating Scale, as reflected by a total loneliness score of >2. Within the entire group of patients,

Table 1. Summary of demographic variables for all participants.

Domain	Score
Number (number of males)	61 (48)
Age μ (SD)[a]	63.3 (7.8)
Gender ratio M:F	47:14
Years in the long-term care facility μ (SD)[b]	5.6 (3.2)
Frequency of visitations by friends, family and acquaintances[c]	6 (9.8%)
Never number (%)	2 (3.3%)
Less than once a year number (%)	32 (52.5%)
Less than once a month number (%)	20 (32.8%)
More than once a month number (%)	
Legal Status:[d]	
Voluntary Admissions number (%)	28 (45.9%)
Involuntary Admissions by judge number (%)	10 (16.4%)
Compulsory admission act 60 number (%)	23 (37.7%)
Body Mass Index μ (SD)[e]	25.4 (5.2)
Performance-Oriented Mobility Assessment μ (SD)[f]	23.0 (6.7)
Severe risk of falling number (%)	11 (18%)
Moderate risk of falling number (%)	14 (23%)
Low risk of falling number (%)	36 (59%)
Braden Ulcer Risk Score μ (SD)[g]	20.0 (2.0)
High risk of ulcers number (%)	8 (13.1%)
Low risk of ulcers number (%)	53 (86.9%)
Incontinence Risk Score μ (SD)[h]	1.3 (1.4)
High risk of incontinence number (%)	6 (9.8%)
Low risk of incontinence number (%)	55 (90.2%)
Nijmegen-Venray Confabulation List-20 μ (SD)[i]	41.7 (13.8)
Spontaneous Confabulations μ (SD)	16.0 (6.3)
Provoked Confabulations μ (SD)	9.4 (3.4)
Memory and orientation μ (SD)	10.5 (5.2)

Note: M = male, F = female.
[a]Age was assessed in years.
[b]Years in the facility was calculated as the total number of years since admission to the long-term care facility.
[c]As indexed by the responsible nurse.
[d]In the Netherlands patients can be involuntary admitted to a psychiatric hospital or nursing home based on the Compulsory Admission Act (article 60) in case of severe disorders in judgment. A judge can order a patient to stay in a psychiatric hospital or nursing home based on danger criteria and independent psychiatric assessment.
[e]Body Mass Index is a measure of body fat based on height and weight.
[f]Total score on the Performance-Oriented Mobility Assessment scale (Tinetti, 1986). Scores below 24 reflect 11 patients (17.7%) had a severe risk of falling.
[g]Total score on the Braden Scale for Predicting Pressure Sore Risk (Bergstrom, Braden, Laguzza, Holman, 1987). A score higher than 16 was regarded as a high risk of ulcers.
[h]Risk score for incontinence.
[i]Total score on the Nijmegen Venray Confabulation List-20 (NVCL-20) and its subscales (Rensen et al., 2015). This inventory is applied to index confabulations. Total scores in our sample ($n = 61$) showed a trend towards a significantly higher score than the KS patient group in the reference sample ($n = 28$) ($t(87) = 1.89$, $p = .062$) (Rensen et al., 2015).

57.3% reported to feel quite lonely (score 3–8), while 14.8% reported to feel severely lonely (>8), suggesting a large majority of the KS patients feeling lonely on a self-report scale. Importantly, healthcare professionals rated the loneliness of the patients as even more pronounced ($t(60) = 3.2$, $p < .005$). There was a moderate consistency between patients ratings and healthcare professional total ratings of loneliness on the 11-item De Jong Gierveld Loneliness Scale (Pearson's r (61) = .40, $p < .01$, two-tailed, see Figure 1). 85.2% was perceived as being lonely based on healthcare reports of the primarily responsible nurse, as reflected by a total loneliness score of >2. Professionals rated 32.8% as severely lonely (>8 score) and 52.4% was reported to feel quite lonely (3–8 score). In 62.3% of the

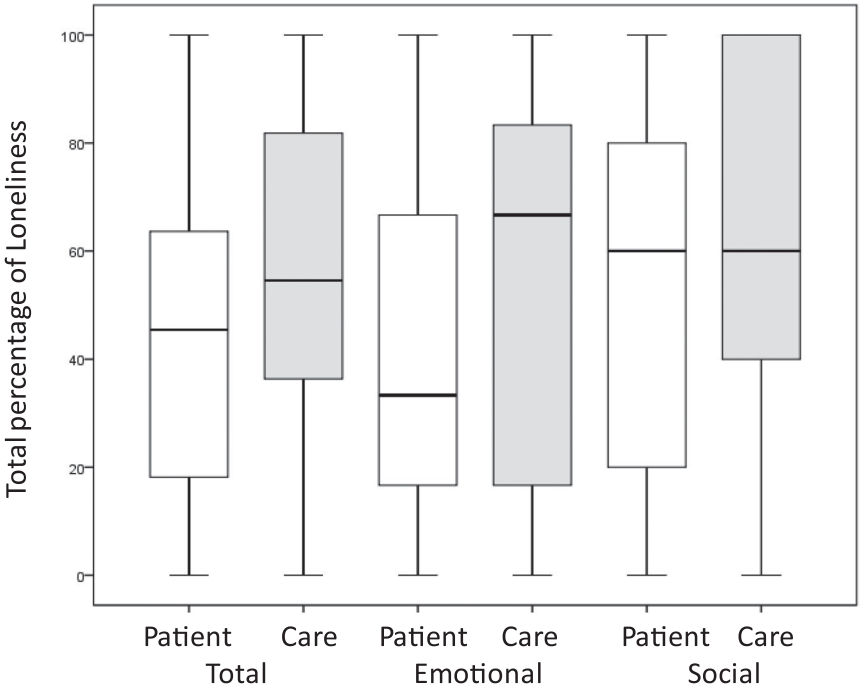

Figure 1. Scatterplots of Loneliness scores in KS patients ($n = 61$) in week 1 and 2 (Left) and healthcare reports (Right).

cases the healthcare professionals rated the loneliness of the patient higher than the patient, indicating a general tendency for higher scores in the perception of the professionals compared to the patients.

In the subscale analysis, healthcare professionals rated emotional loneliness as significantly higher than their patients ($t(60) = 2.7$, $p < .01$). Both self-report and healthcare professional reports were very high. 62.3% of the patients reported to feel emotional loneliness, while healthcare professionals rated 65.6% to show emotional loneliness. In 50.8% of the cases the healthcare professional rated the loneliness of the patient higher than the patient. Moreover, professionals also rated social loneliness to be higher than their patients ($t(60) = 2.42$, $p < .005$). 70.5% of the patients reported social loneliness, while healthcare professionals rated 80.3% as lonely. In 49.2% of the cases the healthcare professional rated social loneliness higher. Box-plots of the percentage-transformed loneliness scores (11 = 100% and 0 = 0%) are represented in Figure 2.

Visits by family, friends and acquaintances

A majority of patients (66.7%) received visitation of family, friends or acquaintances less than once a month (see Table 1). Patients that received visitors less than once a month were rated to be experience more social loneliness by healthcare professionals ($t(58) = 2.36$, $p < .05$), but not themselves ($t(58) = .94$, $p = .35$) than patients that received visitors more often. The frequency of visitations did not influence self-reported emotional loneliness ($t(58) = .931$, $p = .355$) or healthcare reported emotional loneliness ($t(58) = .553$, p

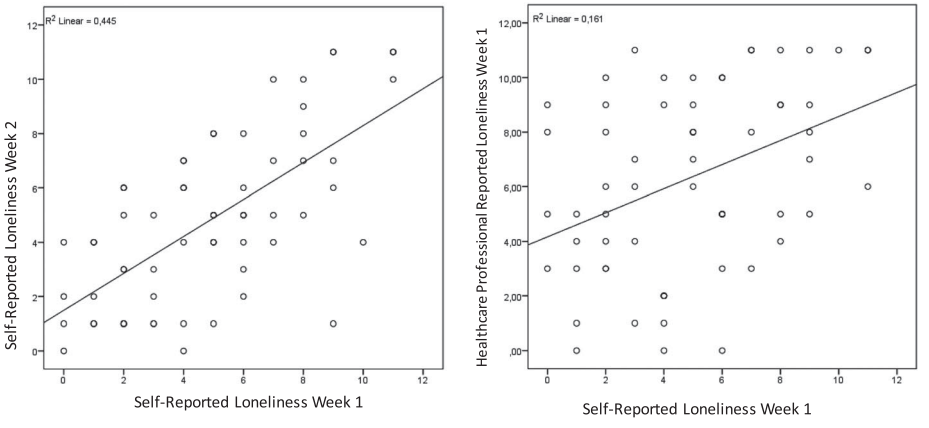

Figure 2. Boxplots of the total percentage of items on the De Jong Gierveld Loneliness scale that indicated loneliness from the perspective of the patients ($n = 61$, white) and healthcare professional (grey).

= .582), possibly reflecting a lack of emotional reciprocity between the patient and the visitor. This result is discussed in more detail in our discussion. Patients that received visitors once a month or more were rated to show less confabulations than patients that received less visitations ($t(58) = 2.32$, $p < .024$). It is likely that the severity of confabulations is also related to the severity of social isolation and self-neglect before admission to the clinic, possibly explaining this phenomenon. This result is also further elaborated on in the discussion.

Correlational analysis

To further investigate loneliness in patients with severe KS correlational analysis was performed with all available characteristics of the KS patients (see Table 1). Self-perceived loneliness was negatively associated with the total years of admission to the chronic care facility (Pearson's r (61)= −.31, $p < .05$, two-tailed), possibly showing that patients that had been admitted for a longer time experienced less loneliness. Additional analysis supported a negative association with self-perceived social loneliness (Pearson's r (61) = −.35, $p < .01$, two-tailed), but not emotional loneliness (Pearson's r (61)= −.17, $p = .21$, two-tailed), possibly indicating a selective amelioration of social functioning over the course of the stay in the facility. Self-perceived loneliness was not significantly associated with any other characteristic (ns >.32). Loneliness as rated by professional caregivers showed a trend towards a negative relationship with the total years of admission to the facility (Pearson's r (61)=−.24, $p = .058$, two-tailed), possibly also reflecting less loneliness in patients that have been admitted for a longer period. This negative trend was also reflected for caregiver perceived emotional loneliness (Pearson's r (61) = −.23, $p = .073$, two-tailed), but not social loneliness (Pearson's r (61)= −.17, $p = .19$, two-tailed), suggesting an opposite pattern in caregivers and patients regarding social and emotional loneliness. Implications of these results are further elaborated on in the discussion. Loneliness as rated by the professional caregiver showed a trend towards a positive association with provoked confabulations (Pearson's r (61) = .24, p= .064, two-tailed), suggesting that

the patients that have been known to show more provoked confabulations are often more lonely. Post-hoc analysis indicated a specific relationship with social loneliness (Pearson's r (61) =.31, $p < .05$, two-tailed), but not emotional loneliness (Pearson's r (61) =.12, p = .351, two-tailed). This result indicates that confabulations particularly have a negative effect on caregiver-perceived social functioning, possibly reflecting a worse outcome group within the patients with severe KS. Implications of this result are further explained in the discussion. Caregiver-perceived loneliness was not significantly associated with any other characteristic (ns >.19).

Discussion

The aim of this study was to explore the extent of feelings of social and emotional loneliness in patients with severe KS that live in a specialised long-term care facility as well as the factors that affect these feelings. Severe KS has frequently been associated with the production of fabricated and distorted memories about oneself and the world, known as confabulations among other severe cognitive disorders. In the present study social and emotional loneliness was indexed by means of self-reports and reports of healthcare professionals on the De Jong Gierveld Loneliness Scale. Results indicate that many KS patients report feelings of loneliness on both a social and emotional level and can reliably indicate those feelings. Healthcare professionals in patient care rated the emotional and social loneliness of the KS patients even higher than the patients themselves. Importantly, professionals rated patients that received visitors less than once a month to experience more social loneliness and also experience more confabulations, reflecting a negative triangular relationship. Social loneliness and confabulations were also negatively related. In contrast, the time of admission had a positive impact on self-perceived social loneliness, and professional perceived emotional loneliness. These results suggest that loneliness is a serious issue in severe KS that requires specific attention in the chronic care of the patients with KS. Especially patients that show confabulations or receive less social support from family and friends are prone to experience feelings of loneliness.

The severity of loneliness in the present study was alarmingly high both from patient and healthcare giver perspective, suggesting that this specific theme is in need of attention in clinical care for the individuals with severe KS. In contrast, in the Dutch population of elderly (55+ years) 32% is estimated to experience loneliness (De Jong Gierveld, 1999), while a two- to threefold of KS patients reported loneliness. This is particularly noteworthy as loneliness has been linked to serious adverse consequences in the development of somatic disorders, cognitive disorders and a shortened life-span (De Jong Gierveld & Van Tilburg, 2010; Heinrich & Gullone, 2006; Luanaigh & Lawlor, 2008; Wilson et al., 2007). Although this is the first study that investigated loneliness in patients with severe KS living in a long-term care facility, earlier research already has pointed out the negative consequences of severe alcoholism (Akerlind & Hörnquist, 1992), cognitive disorders and institutionalisation (Nyqvist et al., 2013) in the development of loneliness. Since the group of patients with KS often have multiple comorbid diagnoses and require intensive support (Sechi & Serra, 2007), it was already very likely that this group of patients would experience a strong sense of loneliness based on the combination of existing problems. It is nevertheless shocking to see that a large majority of the patients experience loneliness and such to quite high degrees.

In our study healthcare professionals more often reported emotional and social loneliness than self-reports of loneliness in patients with severe KS. This finding is partially in line with an earlier study indicating that healthcare professionals reported quality of life in patients with KS to be lower than their self-reports (Steinmetz et al., 2014). Steinmetz and colleagues (2004) gave three possible explanations for the discrepancy between professionals and self-report scores, namely a lack of self-awareness in the patients, more social desirability in the reports of the patients, and a state instead of a trait dependent interpretation of the questions by the patients leading to their higher quality of life scores. Regarding our scores on self-perceived loneliness, it is less likely that all three their explanations could fully explain the discrepancy of the scores with healthcare professionals in the present study. Patients in our study indicated strong feelings of loneliness, reducing the possibility that self-awareness or social desirability could fully explain our finding of discrepancy, although it could be that both factors still have a limited influence on the discrepancy. Importantly, relatively higher scores of loneliness as gauged by healthcare professionals contrast with earlier findings of underestimations of loneliness in proxies of healthy subjects compared to self-reports (Luhmann, Bohn, Holtmann, Koch, & Eid, 2016). Luhmann and Hawkley (2016) found that specifically romantic lovers are relatively good in estimating the loneliness of their partners, but others such as friends and family underestimate loneliness. In our population, loneliness was overestimated by healthcare professionals in comparison to self-reports, suggesting an opposite pattern.

Taken together our results definitely show that patients with KS can seriously reflect upon their loneliness, and can fairly communicate and report about this. They can do this even despite the severity of their cognitive disorders and the fact that for other domains—for example, psychopathological problems—these patients are known to underestimate (Egger et al., 2002). Since the loneliness scores were very high in our study, and patients report those loneliness scores as well as healthcare professionals it is relevant to devote new research into possibilities to reduce feelings of loneliness in severe KS.

Based on our results, some suggestions can be made regarding possible interventions to reduce loneliness in KS. In our study both visitations by family members, friends or acquaintances and the length of the stay in the clinic seemed to have positive consequences in conquering social loneliness in self-reports of the patients. Visits also positively influenced emotional loneliness from healthcare professional perspective. In a clinical setting with severe KS patients it is therefore relevant to promote social interactions between family members, friends or acquaintances, for example, by giving sufficient psycho-education, guidance, and even compliments concerning the interactions with patients that suffer from severe KS. Often social networks of patients with severe KS are very small, caused by the severity of alcoholism leading to social isolation, and interactional problems caused by the neurocognitive consequences of KS (Kopelman et al., 2009). Also, it is relevant to promote interactions between patients within the clinic if possible. By increasing the frequency and extent of social interactions by healthcare professionals it is more likely that patients have sufficient possibilities to socially interact with other patients. The severity of cognitive disorders in severe KS can reduce the possibilities to socially interact with others themselves dramatically, for example, due to executive function deficits that hamper possibilities to initiate, plan, coordinate and stop their

social interactions. Also, disorders of affect, emotion perception and social cognition in patients with KS might also hamper social interactions (see Arts, Walvoort, & Kessels, 2017, Korsakoff's syndrome: A critical review). It would therefore be relevant to investigate particular success factors in promoting long-term social interactions with and between severe KS patients by healthcare professionals.

Confabulations are a neuropsychiatric symptom central to severe KS (Rensen et al., 2015). Patients unintentionally formulate incorrect statements regarding their own situation. In our study patients confabulated slightly but significantly more than in an earlier reference group of patients with acute KS (see Table 1; Rensen et al., 2015), suggesting that our group represented a relatively bad KS outcome group. Besides cognitive and psychiatric problems, patients often have a diversity of socioeconomic problems related to the severity of self-neglect and social isolation caused by alcoholism (Sechi & Serra, 2007). Moreover, mobility problems are often present due to vitamin deficiencies (Wijnia et al., 2014). The complexity of disorders that have been related to severe KS could suggest that both emotional and social loneliness are high in this population. The three-way negative relationship between confabulations, a lack of visits, and loneliness was also clear in our study, supporting that at least a subgroup of patients enrolled in the present study had severe functional and social outcome following their KS. From our purely correlation data it is difficult to decide what causal direction is present between the three factors. A possible explanation for more confabulations in patients that reported more loneliness is that confabulations could form a compensatory mechanism for a lack of subjective fulfilment in communication needs. In line with this possibility earlier research has indicated that other neuropsychiatric symptoms, such as hallucinations, in patients with severe Alzheimer's disease may constitute such a compensatory mechanism specifically in a worse outcome group (Haj et al., 2016). Following this reasoning we may argue that loneliness and isolation are central to the development of confabulations. The precise interactional relationship between confabulations, social deprivation and loneliness requires further research.

One of the striking findings in the present study was that self-reported emotional loneliness did not correlate with factors such as family visits, confabulations or the time of admission, suggesting that the experience of severe emotional loneliness is not easily treatable in severe KS. It is important to note that none of the patients in the current study had a love relationship with someone at the time of the interviews. Moreover, many of the patients had no love relationships during their lives before the onset of severe KS, possibly explaining the finding of emotional loneliness. Although the desire to form new love relationships is often verbally pronounced within the clinical setting, the severity of cognitive disorders frequently are very likely to diminish the possibilities to form new stable relationships. Due to the cognitive problems, patients are often unable to regulate their emotions properly or to make use of adequate emotion compensation strategies (Oudman, Nijboer, Postma, Wijnia, & Van der Stigchel, 2015). Nevertheless, previous *r* research on patients with TBI suggested that even patients with quite severe TBI sometimes are able to form novel love relationships, or to maintain already existing marital relationships (Godwin, Kreutzer, Arango-Lasprilla, & Lehan, 2011), This may imply that also in our population of severely compromised patients interventions to reduce loneliness are possible. In conclusion, the present study reveals the presence of severe emotional and social loneliness in patients with KS, both from a patient and healthcare

perspective. Social isolation due to neuropsychiatric symptomatology or a lack of visits could lead to more feelings of social isolation, while a prolonged stay in the facility was beneficiary. Our results show that individuals with severe KS are particularly at risk for the development of adverse health consequences due to loneliness. Therefore, more research is needed to focus on possible strategies to reduce feelings of loneliness in severe KS.

Disclosure statement

No potential conflict of interest was reported by the authors.

ORCID

Erik Oudman http://orcid.org/0000-0002-4441-0365
Mirjam van Dam http://orcid.org/0000-0002-5427-6454

References

Akerlind, I., & Hörnquist, J. O. (1992). Loneliness and alcohol abuse: A review of evidences of an interplay. *Social Sciences and Medicine*, *34*, 405–414.
American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Publishing.
Arts, N. J. M., Walvoort, S. J. W., & Kessels, R. P. C. (2017). Korsakoff's syndrome: A critical review. *Neuropsychiatric Disease and Treatment*, *13*, 2875–2890.
Bergstrom, N., Braden, B. J., Laguzza, A., & Holman, V. (1987). The Braden scale for predicting pressure sore risk. *Nursing Research*, *36*(4), 205–210.
Borsutzky, S., Fujiwara, E., Brand, M., & Markowitsch, H. J. (2008). Confabulations in korsakoff patients. *Neuropsychologia*, *46*, 3133–3143.
Bury, M., & Holme, A. (1990). Quality of life and social support in the very old. *Journal of Aging Studies*, *4*, 345–357.
Canham, S. L., Mauro, P. M., Kaufmann, C. N., & Sixsmith, A. (2016). Association of alcohol use and loneliness frequency among middle-aged and older adult drinkers. *Journal of Aging and Health*, *28*, 267–284.
Copersino, M. L., Schretlen, D. J., Fitzmaurice, G. M., Lukas, S. E., Faberman, J., Sokoloff, J., & Weiss, R. D. (2012). Effects of cognitive impairment on substance abuse treatment attendance: Predictive validation of a brief cognitive screening measure. *American Journal of Drug and Alcohol Abuse*, *38*, 246–250.
Dahlberg, L., Andersson, L., McKee, K. J., & Lennartsson, C. (2015). Predictors of loneliness among older women and men in Sweden: A national longitudinal study. *Aging and Mental Health*, *19*, 409–417.
Dahlberg, L., & McKee, K. J. (2014). Correlates of social and emotional loneliness in older people: Evidence from an English community study. *Aging and Mental Health*, *18*, 504–514.
De Jong Gierveld, J. (1999). Loneliness in elderly (in Dutch). *Geron, Tijdschrift Voor Sociale Gerontology*, *1*, 1–5.
De Jong Gierveld, J., & Kamphuis, F. H. (1985). The development of a rasch-type loneliness-scale. *Applied Psychological Measurement*, *9*, 289–299.
De Jong Gierveld, J., Kamphuis, J., & Dykstra, F. (1987). Old and lonely? *Comprehensive Gerontology*, *1*, 13–17.
De Jong Gierveld, J., & Van Tilburg, T. (2010). The De Jong Gierveld short scales for emotional and social loneliness: Tested on data from 7 countries in the UN generations and gender surveys. *European Journal of Ageing*, *7*, 121–130.

De Jong Gierveld, J., & Van Tilburg, T. G. (2006). A six-item scale for overall, emotional and social loneliness: Confirmative tests on new survey data. *Research on Aging*, *28*, 582–598.
Donovan, N. J., Okereke, O. I., Vannini, P., Amariglio, R. E., Rentz, D. M., Marshall, G. A., … Sperling, R. A. (2016). Association of higher cortical amyloid burden with loneliness in cognitively normal older adults. *JAMA Psychiatry*, *73*, 1230–1237.
Dykstra, P. A., & Fokkema, T. (2007). Social and emotional loneliness among divorced and married men and woman: Comparing the defecit and cognitive perspectives. *Basic and Applied Social Psychology*, *29*, 1–12.
Egger, J. I. M., Wester, A. J., De Mey, H. R., & Derksen, J. J. (2002). Korsakoff's syndrome on the MMPI-2. *Acta Neuropsychiatrica*, *14*, 231–236.
Fotopoulou, A., Conway, M. A., & Solms, M. (2007). Confabulation: Motivated reality monitoring. *Neuropsychologia*, *45*(10), 2180–2190.
Godwin, E. E., Kreutzer, J. S., Arango-Lasprilla, J. C., & Lehan, T. J. (2011). Marriage after brain injury: Review, analysis, and research recommendations. *The Journal of Head Trauma Rehabilitation*, *26*(43), 43–55.
Haj, E., Jadri, M., Laroi, R., & Antoine, F. (2016). Hallucinations, loneliness, and social isolation in Alzheimer's disease. *Cognitive Neuropsychiatry*, *21*, 1–13.
Heinrich, L. M., & Gullone, E. (2006). The clinical significance of loneliness: A literature review. *Clinical Psychology Review*, *26*, 695–718.
Holmén, K., Ericsson, K., & Winblad, B. (2000). Social and emotional loneliness among non-demented and demented elderly people. *Archives of Gerontology and Geriatrics*, *31*, 177–192.
Holwerda, T. J., Deeg, D. J., Beekman, A. T., van Tilburg, T. G., Stek, M. L., Jonker, C., & Schoevers, R. A. (2014). Feelings of loneliness, but not social isolation, predict dementia onset: Results from the Amsterdam study of the elderly (AMSTEL). *Journal of Neurology, Neurosurgery, and Psychiatry*, *85*, 135–142.
Kopelman, M. D., Thomson, A. D., Guerrini, I., & Marshall, E. J. (2009). The Korsakoff syndrome: Clinical aspects, psychology and treatment. *Alcohol and Alcoholism*, *44*(2), 148–154.
Korporaal, M., Broese van Groenou, M., & Van Tilburg, T. G. (2008). Effects of own and spousal disability on loneliness among older adults. *Journal of Aging and Health*, *20*, 306–325.
Luanaigh, C. O., & Lawlor, B. A. (2008). Loneliness and the health of older people. *International Journal of Geriatric Psychiatry*, *23*, 1213–1221.
Luhmann, M., Bohn, J., Holtmann, J., Koch, T., & Eid, M. (2016). I'm lonely can't you tell? Convergent validity of self- and informant ratings of loneliness. *Journal of Research in Personality*, *61*, 50–60.
Luhmann, M., & Hawkley, L. C. (2016). Age differences in loneliness from late adolescence to oldest old age. *Developmental Psychology*, *52*(6), 943–959.
McLean, A. M., Jarus, T., Hubley, A. M., & Jongbloed, L. (2014). Associations between social participation and subjective quality of life for adults with moderate to severe traumatic brain injury. *Disability and Rehabilitation*, *36*, 1409–1418.
Neto, F. (2015). Socio-demographic and subjective well-being predictors of social and emotional loneliness. *Social Inquiry Into Well-Being*, *1*, 13–21.
Nyqvist, F., Cattan, M., Andersson, L., Forsman, A. K., & Gustafson, Y. (2013). Social capital and loneliness among the very old living at home and in institutional settings: A comparative study. *Journal of Aging and Health*, *25*, 1013–1035.
Oudman, E., Nijboer, T. C. W., Postma, A., Wijnia, J. W., & Van der Stigchel, S. (2015). Procedural learning and memory rehabilitation in Korsakoff's syndrome - a review of the literature. *Neuropsychology Review*, *25*, 134–148.
Penninx, B. W. J. H., Van Tilburg, T. G., Kriegsman, D. M. W., Boeke, A. J. P., Deeg, D. J. H., & Van Eijk, J. T. M. (1999). Social network, social support, and loneliness in older persons with different chronic diseases. *Journal of Aging and Health*, *11*, 151–168.
Perlman, D., & Peplau, L.A. (1981). Toward a social psychology of loneliness. In R. Gilmour & S. Duck (Eds.), *Personal relationships 3: Personal relationships in disorder* (pp. 31–43). London: Academic.

Rensen, Y. C., Oosterman, J. M., Van Damme, J. E., Griekspoor, S. I., Wester, A. J., Kopelman, M. D., & Kessels, R. P. C. (2015). Assessment of confabulation in patients with alcohol-related cognitive disorders: The nijmegen-venray confabulation list (NVCL-20). *Clinical Neuropsychologist*, *29*, 804–823.

Sansoni, J., Marosszeky, N., Sansoni, E., & Fleming, G. (2010). *Final report: Effective assessment of social isolation*. Centre for Health Service Development, University of Wollongong.

Savikko, N., Routasalo, P. E., Tilvis, R. S., Strandberg, T. E., & Pitkala, K. H. (2005). Predictors and subjective causes of loneliness in an aged population. *Archives of Gerontology and Geriatry*, *41*, 223–233.

Sechi, G., & Serra, A. (2007). Wernicke's encephalopathy: New clinical settings and recent advances in diagnosis and management. *Lancet Neurology*, *6*, 442–455.

Smith, I., & Hillman, A. (1999). Management of alcohol Korsakoff syndrome. *Advances in Psychiatric Treatment*, *5*, 271–278.

Snel, N., & Plantinga, S. (2012). *Week against loneliness (in Dutch)*. Amsterdam: TNS Nipo/Coalitie Erbij.

Steinmetz, J.-P., Theisen-Flies, C., & Federspiel, C. (2014). Views on quality of life differ between alcohol related brain damaged individuals and their healthcare professionals. *Applied Research in Quality of Life*.

Tilvis, R. S., Laitala, V., Routasalo, P. E., & Pitkäla, K. H. (2011). Suffering from loneliness indicates significant mortality risk of older people. *Journal of Aging Research*, *534781*, 1–5.

Tinetti, M. E. (1986). Performance-oriented assessment of mobility problems in elderly patients. *Journal of the American Geriatrics Society*, *34*(2), 119–126.

Weiss, R. S. (1973). *Loneliness: The experience of emotional and social isolation*. London: MIT Press.

Wijnia, J. W., Oudman, E., Bresser, E. L., Gerridzen, I., Van de Wiel, A., Beuman, C., & Mulder, C. L. (2014). Need for early diagnosis of mental and mobility changes in wernicke encephalopathy. *Cognitive and Behavioral Neurology*, *27*, 215–221.

Wilson, R. S., Krueger, K. R., Arnold, S. E., Schneider, J. A., Kelly, J. F., Barnes, L. L., … Bennett, D. A. (2007). Loneliness and the risk of Alzheimer disease. *Archives of General Psychiatry*, *64*, 234–240.

Zhong, B. L., Chen, S. L., & Conwell, Y. (2016). Effects of transient versus chronic loneliness on cognitive function in older adults: Findings from the Chinese longitudinal healthy longevity survey. *American Journal of Geriatric Psychiatry*, *24*, 389–398.