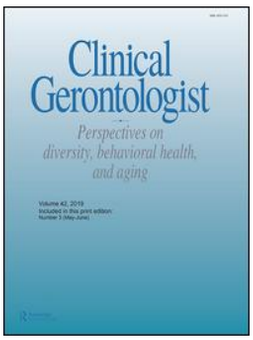

Clinical Gerontologist

ISSN: 0731-7115 (Print) 1545-2301 (Online) Journal homepage: https://www.tandfonline.com/loi/wcli20

Medical Help-Seekers with Anxiety from Deterioration in Memory are Characterized with Risk Factors for Cognitive Decline

Ariela Gigi, Merav Papirovitz, Eli Vakil & Therese Treves

To cite this article: Ariela Gigi, Merav Papirovitz, Eli Vakil & Therese Treves (2018): Medical Help-Seekers with Anxiety from Deterioration in Memory are Characterized with Risk Factors for Cognitive Decline, Clinical Gerontologist, DOI: 10.1080/07317115.2018.1527423

To link to this article: https://doi.org/10.1080/07317115.2018.1527423

CLINICAL GERONTOLOGIST
https://doi.org/10.1080/07317115.2018.1527423

Routledge
Taylor & Francis Group

Medical Help-Seekers with Anxiety from Deterioration in Memory are Characterized with Risk Factors for Cognitive Decline

Ariela Gigi[a], Merav Papirovitz[a,b], Eli Vakil[c], and Therese Treves[d,e]

[a]Psychology & Behavioral Science Department, Ariel University, Ariel, Israel; [b]Psychology Department, Bar-Ilan University, Ramat-Gan, Israel; [c]Psychology Department and Leslie & Gonda Brain Research Center, Bar-Ilan University, Ramat-Gan, Israel; [d]Department of Neurology, Rabin Medical Center, Petach Tikva, Israel; [e]Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel

ABSTRACT

Objectives: Anxiety and subjective memory complaints (SMC) are major risk factors for Mild Cognitive Impairment (MCI) and dementia. However, the association between anxiety, SMC and medical help-seeking due to complaints is not clear. Here, we assessed anxiety which rose specifically by memory examination and compared it between help-seekers in memory clinics (HS) and non-help seekers (NHS).

Methods: Twenty HS (60% female) were recruited from a memory Clinic, and 55 NHS (63% female) were recruited from the community. Participants (aged 59–82) completed objective memory assessment, Subjective Memory questionnaire, depression questionnaire and State-Trait Anxiety questionnaire. State-anxiety was assessed immediately following memory testing (indicating anxiety triggered by testing memory). For statistical evaluation, we used non-parametric tests.

Results: HS participants reported significantly higher levels of state-anxiety and had more SMC compared to the NHS. No differences in objective memory tests and trait-anxiety were found.

Conclusions: People who are seeking help in memory clinics (even those who do not meet any criteria for memory decline) are liable to be at high risk for MCI and dementia.

Clinical Implications: We recommend that HS with SMC should be treated as a high-risk group, even if they do not show objective memory deficits.

KEYWORDS

Dementia; medical help seeking; memory clinic; mild cognitive impairment; specific anxiety; subjective memory complaints

Introduction

The growing interest in subjective memory complaints (SMC) over the past decade, can be attributed mainly to accumulated literature showing that, among normal elders (who score within the normal range on standardized memory tests), the SMC are associated with a higher risk to develop mild cognitive impairment (MCI) and dementia (Mitchell, Beaumont, Ferguson, Yadegarfar, & Stubbs, 2014; Rönnlund, Sundström, Adolfsson, & Nilsson, 2015). However, the SMC does not necessarily reflect the objective cognitive condition. In fact, most of the studies have shown that SMC are more associated with anxiety and depression than with actual cognitive deterioration (e.g., Balash et al., 2013). At the same time, it turns out that anxiety and depression are also, like SMC, risk factors for Mild Cognitive Impairment (MCI) and dementia (Feng et al., 2017; Kassem et al., 2017; Petkus et al., 2016).

The implications of SMC rely solely on an individual's decision to seek medical help (Eckerström, 2017). Although medical help seekers (HS) do not differ from non-help seekers (NHS) in objective memory performance (Hurt, Burns, Brown, & Barrowclough, 2012), HS present significantly more SMC compared to NHS (La Joie et al., 2016; Pires et al., 2012). The association, however, between HS and depressive/anxious symptomatology is not so clear (Eckerström, 2017). Studies assessing anxiety among people who seek help due to memory complaints, have raised contradictory findings: For example, while Jorm and colleagues (2004) found that people who seek help in memory clinics had more symptoms of general anxiety than those who did not seek help, other studies found no differences in the level of general anxiety between those two groups (Hurt, Burns, Brown, & Barrowclough, 2012; Ramakers et al., 2009).

CONTACT Ariela Gigi arielag@ariel.ac.il Department of Psychology, Ariel University, Ariel 40700, Israel.

To summarize the above, while SMC are associated with anxiety (Balash et al., 2013; Studer, Donati, Popp, & Gunten, 2014) and seeking medical help (Hurt et al., 2012; La Joie et al., 2016), the association between help-seeking and anxiety is not so clear. Here we hypothesized that HS's memory complaints are, in fact, a reflection of their anxiety, and specifically, anxiety triggered by facing their memory deterioration (even minor normal deterioration). To assess this specific anxiety, we used 'State-Anxiety' questionnaire (assessing anxiety responses to stressful situations; Spielberger, 1966) immediately after completing memory tests.

It is important to emphasize that previous studies which assessed anxiety among people who seek help in memory clinics, examined only levels of general anxiety (e.g., Jorm et al., 2004; Perrotin et al., 2017). Thus, to the best of our knowledge, this is the first study assessing anxiety that is related specifically to cognitive condition.

Methods

Participants

Seventy-five older adults participated in this study, aged 59–82. Twenty of them were 'Help Seekers' (HS) (60% female) who sought medical help at the 'Memory Clinic' of the Rabin Medical Center in Israel, due to their memory complaints. For recruiting the HS participants, a neuropsychologist joined the neurological diagnosis sessions at the 'Memory Clinic.' Following a neurological screening which included a preliminary inquiry and a MMSE test (Ramlall, Chipps, Bhigjee, & Pillay, 2013), any attendees who were suspected by the neurologist of an MCI diagnosis were offered the possibility of participating in the study. Upon consent, he/she was transferred for a neuropsychological evaluation which took place at a quiet room in the clinic. The 'Non-Help Seekers' (NHS) (N = 55, 63% female) were recruited from the community through acquaintances or Elder-Community Centers (which serve as a social meeting place for healthy older adults from the community) (with adjusting age range to that of the HS group). Exclusion criteria for both groups were: Mini-Mental State Examination (MMSE) with a score of 24 or less (Folstein, Folstein, & McHugh, 1975) and any neurological condition or psychiatric diagnosis during the last five years (self-reported). The study was performed according to the approval of the Rabin Medical Center Ethics Committee.

Neuropsychological Testing

All of the participants underwent a neuropsychological test battery which began with a demographic questionnaire and was followed by objective and subjective memory tests and anxiety and depression questionnaires.

Objective and subjective memory measurements

The Hebrew version of the Rey-Auditory Verbal Learning Test (RAVLT) was used for evaluating objective abilities of episodic learning and memory (Vakil & Blachstein, 1993). A list of 15 words is displayed auditorily five times (Trials), and at the end of each time, the participants are requested to report as many words as they remember. Twenty minutes later, they are asked to retrieve the words from memory. Two measures were evaluated by the RAVLT: one was the total learning (sum of Trials 1–5), which reflects the individual's ability to accumulate words across repeated learning trials; the other was delayed memory (Long Term Memory), as measured after 20 minutes.

Subjective memory was assessed by the Subjective Memory Questionnaire (SMQ) (Bennett-Levy & Powell, 1980). Subjective memory (metamemory) reflects the knowledge about the contents and accuracy of one's memory (Nelson, 1990) and is typically assessed by asking individuals to reflect on, or introspect about their memory (Ghetti, Mirandola, Angelini, Cornoldi, & Ciaramelli, 2011). These self-reports are, in fact, beliefs based on feelings, and it is assumed that these beliefs do not necessarily reflect real (objective) memory abilities. The questionnaire consists of 43 items, containing two parts. Part A evaluates the subject's perception of his/her memory ability for various things (e.g., names of people, telephone numbers, etc.) on a Likert-type scale ranging from "Very Bad" to "Very Good." Part B assesses the

subject's perception of how often certain memory failures occur (e.g., forgetting a word in the middle of a sentence, etc.) on a scale from "Very Often" to "Rarely or Never." Parts A and B are summed to obtain a total subjective memory score (Bennett-Levy & Powell, 1980). We administered a Hebrew version of the SMQ questionnaire. The questionnaire was translated and back-translated, as is required for interrater reliability.

Affective measures

The State-Trait Anxiety Inventory (STAI) contain two questionnaires: trait anxiety questionnaire and state anxiety questionnaire (Spielberger, Gorsuch, & Lushene, 1970): The Trait-Anxiety questionnaire was designed to assess general anxiousness (a stable tendency to experience anxiety across many situations). Therefore, it was administered following the demographic questionnaire. The State-Anxiety questionnaire, however, was designed to measure anxiety experienced in the moment (Spielberger, 1966). Since the aim of our study was to measure anxiety associated with memory functioning, the questionnaire was administered immediately following the memory testing.

For assessing depression, we used the Beck Depression Inventory which is a 21-item, self-report rating inventory that evaluates key symptoms of depression (e.g., mood, sense of failure and loss of libido) (Beck, Steer, & Brown, 1996).

Procedure

NHS were tested individually in a quiet room in their home or in a quiet room at their Senior Center. HS were tested separately in a quiet room at the memory clinic. The duration of each meeting was about an hour. All individuals participated in the study were rewarded with a written report regarding their performance.

Statistical Analysis

Due to the discrepancy in groups size and since HS group was too small to meet criteria for parametric tests, differences between the groups were analyzed using the non-parametric chi-square and Mann–Whitney tests.

Table 1. Group's demographic characteristics.

Characteristic	Age (SD)	Gender (F/M)	Education (SD)	MMSE (SD)
Help Seekers	70 (7)	15/5	14.2 (3)	28.1 (1.6)
Non-Help Seekers	67.1 (6)	34/21	13.5 (3.2)	28.7 (1.3)

Abbreviations: *SD*, Standard Deviation; F/M, Female/Male; MMSE, Mini-Mental State Examination.

Table 2. Group differences in memory and affect assessments.

Variable	Help seekers	Non-help seekers	*P* Value
RAVLT, TOL	42.7 (8.6)	46.5 (9)	0.17
RAVLT, DM	7.3 (2.9)	8.3 (3)	0.19
Trait Anxiety	31.3 (8.2)	30.6 (6.5)	.160
State Anxiety	41.8 (11.6)	33.6 (10.5)	.0020
Depression	10.8 (8.4)	6.1 (5.2)	.0130
SMQ	133.6 (19.5)	144.2 (19.9)	.0460

Group averages and the standard deviation in brackets. Abbreviations: RAVLT, Rey Auditory Verbal Learning Test; TOL, Total Learning; DM, Delayed Memory; SMQ, Subjective Memory Questionnaire.

Results

Analyses of demographic characteristics and MMSE scores (Table 1) were conducted by using chi-square (for gender) and by Mann–Whitney tests (age; education; MMSE). HS and NHS were found to be quite similar, with no significant differences ($p > 0.05$). Statistical analysis of memory and affective scores (using Mann–Whitney tests; Table 2) revealed three important significant differences between groups: the HS reported significantly more subjective complaints (symptoms) regarding memory deficits, compared to the NHS ($z = 2.0$; $p = .046$). In addition, the HS group reported significantly higher levels of State-Anxiety ($z = 3.1$) and depression ($z = 2.47$) compared to the NHS group.

Nevertheless, the two groups were quite similar in objective memory performance (Total Learning: $z = 1.35$; Delayed Memory: $z = 1.3$; $p > 0.05$) and in levels of Trait-Anxiety ($z = 0.58$; $p > 0.05$).

Discussion

Consistent with previous recent findings (e.g., Hurt et al., 2012; Perrotin et al., 2017), the current study revealed no differences between HS and

NHS in objective cognitive performance and in Trait-Anxiety. However, in line with previous literature, HS exhibited more SMC and reported having higher levels of depression (Jorm et al., 2004). In addition, HS reported higher levels of State Anxiety which may be directly related to their cognitive condition. It is important to reiterate that, unlike previous studies assessing general anxiety, we have examined here the anxiety that particularly occurred following the memory tests. Measuring anxiety immediately after the memory test can explain, in our opinion, the affective differences between the groups, as was revealed in our results compared to previous studies.

Anxiety, depression and SMC (even without having objective memory deficits) are known as major risk factors for Mild Cognitive Impairment (MCI) and dementia (Mitchell et al., 2014; Petkus et al., 2016). Although this is a small study, our findings indicate that HS in memory clinics (even those who do not meet any criteria for memory decline) have these risk factors, and therefore, they can be at risk for cognitive decline which may later develop into dementia.

Early identification of such at-risk groups is dramatically important in early diagnosis of cognitive decline: not only in reducing the costs of healthcare systems but also in effectively assisting slowing down the progress of illness (Ghamari et al., 2016). Due to the significance of the results here we recommend to further examine the evolution of symptoms in these unique groups.

Clinical Implications

- Since HS group is characterized by risk factors for memory deterioration, our first recommendation is to further examine the possibility that HS are at risk for memory deterioration. This means that it is important to investigate the possibility that when someone is seeking medical consultation due to memory complaints (even if it turns out that there is no significant decrease in objective parameters of memory), professionals should start follow-up with this HS, in order to detect possible early signs of cognitive decline
- Our second recommendation is related to Petkus and colleagues (2016) article, which suggested the possibility of treatment for anxiety to decrease the risk of developing dementia. Accordingly, we suggest considering such anxiety treatment for HS with SMC.

Disclosure Statement

No potential conflict of interest was reported by the authors.

References

Balash, Y., Mordechovich, M., Shabtai, H., Giladi, N., Gurevich, T., & Korczyn, A. D. (2013). Subjective memory complaints in elders: Depression, anxiety, or cognitive decline? *Acta Neurológica Scandinavica*, *127*(5), 344–350. doi:10.1111/ane.12038

Beck, A. T., Steer, R. A., & Brown, G. K. (1996). Beck depression inventory-II. *San Antonio*, *78*(2), 490–498.

Bennett-Levy, J., & Powell, G. E. (1980). The Subjective Memory Questionnaire (SMQ). An investigation into the self reporting of 'real life' memory skills. *British Journal of Clinical Psychology*, *19*(2), 177–188. doi:10.1111/j.2044-8260.1980.tb00946.x

Eckerström, M. (2017). *Subjective cognitive decline in memory clinic patients-characteristics and clinical relevance* (Doctoral dissertation). Retrieved from https:// gupea.ub.gu.se/handle/2077/51883.

Feng, L., Lim, W. S., Chong, M. S., Lee, T. S., Gao, Q., Nyunt, M. S. Z., … Ng, T. P. (2017). Depressive symptoms increase the risk of mild neurocognitive disorders among elderly Chinese. *The Journal of Nutrition, Health & Aging*, *21*(2), 161–164. doi:10.1007/s12603-016-0765-3

Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state": A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, *12*(3), 189–198.

Ghamari, M., Janko, B., Sherratt, R. S., Harwin, W., Piechockic, R., & Soltanpur, C. (2016). A survey on wireless body area networks for healthcare systems in residential environments. *Sensors*, *16*(6), 1–33. doi:10.3390/s16060831

Ghetti, S., Mirandola, C., Angelini, L., Cornoldi, C., & Ciaramelli, E. (2011). Development of subjective recollection: Understanding of and introspection on memory states. *Child Development*, *82*(6), 1954–1969. doi:10.1111/j.1467-8624.2011.01645.x

Hurt, C. S., Burns, A., Brown, R. G., & Barrowclough, C. (2012). Why don't older adults with subjective memory complaints seek help? *International Journal of Geriatric Psychiatry*, *27*(4), 394–400. doi:10.1002/gps.2731

Jorm, A. F., Butterworth, P., Anstey, K. J., Christensen, H., Easteal, S., Maller, J., … Sachdev, P. (2004). Memory complaints in a community sample aged 60–64 years: Associations with cognitive functioning, psychiatric symptoms, medical conditions, APOE genotype, hippocampus and amygdala volumes, and white-matter hyperintensities. *Psychological Medicine*, *34*(8), 1495–1506.

Kassem, A. M., Ganguli, M., Yaffe, K., Hanlon, J. T., Lopez, O. L., Wilson, J. W., … Osteoporotic Fractures in Men (Mros) Study Research Group. (2017). Anxiety symptoms

and risk of cognitive decline in older community-dwelling men. *International Psychogeriatrics*, *29*(7), 1137–1145. doi:10.1017/S104161021700045X

La Joie, R., Perrotin, A., Egret, S., Pasquier, F., Tomadesso, C., Mézenge, F., … Chételat, G. (2016). Qualitative and quantitative assessment of self-reported cognitive difficulties in nondemented elders: Association with medical help seeking, cognitive deficits, and β-amyloid imaging. *Alzheimer's & Dementia: Diagnosis, Assessment & Disease Monitoring*, *5*, 23–34.

Mitchell, A. J., Beaumont, H., Ferguson, D., Yadegarfar, M., & Stubbs, B. (2014). Risk of dementia and mild cognitive impairment in older people with subjective memory complaints: Meta analysis. *Acta Psychiatrica Scandinavica*, *130* (6), 439–451. doi:10.1111/acps.12336

Nelson, T. O. (1990). Metamemory: A theoretical framework and new findings. *Psychology of Learning and Motivation*, *26*, 125–173.

Perrotin, A., La Joie, R., De La Sayette, V., Barré, L., Mézenge, F., Mutlu, J., … Chételat, G. (2017). Subjective cognitive decline in cognitively normal elders from the community or from a memory clinic: Differential affective and imaging correlates. *Alzheimer's & Dementia*, *13*(5), 550–560. doi:10.1016/j.jalz.2016.08.011

Petkus, A. J., Reynolds, C. A., Wetherell, J. L., Kremen, W. S., Pedersen, N. L., & Gatz, M. (2016). Anxiety is associated with increased risk of dementia in older Swedish twins. *Alzheimer's & Dementia*, *12*(4), 399–406. doi:10.1016/j.jalz.2015.09.008

Pires, C., Silva, D., Maroco, J., Ginó, S., Mendes, T., Schmand, B. A., … De Mendonça, A. (2012). Memory complaints associated with seeking clinical care. *International Journal of Alzheimer's Disease*, *2012*, 1–5. doi:10.1155/2012/725329

Ramakers, I H. G. B, Visser, P. J, Bittermann, A J. N, Ponds, R W. H. M, van Boxtel, M P. J, & Verhey, F R. J. (2009). Characteristics of help seeking behaviour in subjects with subjective memory complaints at a memory clinic: a case-control study. *International Journal Of Geriatric Psychiatry*, *24*(2), 190–196. doi: 10.1002/gps.2092

Ramlall, S., Chipps, J., Bhigjee, A. I., & Pillay, B. J. (2013). The sensitivity and specificity of subjective memory complaints and the subjective memory rating scale, deterioration cognitive observee, mini-mental state examination, six-item screener and clock drawing test in dementia screening. *Dementia and Geriatric Cognitive Disorders*, *36* (1–2), 119–135. doi:10.1159/000350768

Rönnlund, M., Sundström, A., Adolfsson, R., & Nilsson, L. G. (2015). Subjective memory impairment in older adults predicts future dementia independent of baseline memory performance: Evidence from the Betula prospective cohort study. *Alzheimer's & Dementia*, *11*(11), 1385–1392. doi:10.1016/j.jalz.2014.11.006

Spielberger, C. D. (1966). The effects of anxiety on complex learning and academic achievement. In C. D.Spielberger (Ed.), *Anxiety and behavior* (pp. 361-398). New York, NY: Academic Press. doi:10.1016/B978-1-4832-3131-0.50019-6

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.

Studer, J., Donati, A., Popp, J., & Gunten, A. (2014). Subjective cognitive decline in patients with mild cognitive impairment and healthy older adults: Association with personality traits. *Geriatrics & Gerontology International*, *14*(3), 589–595. doi:10.1111/ggi.12139

Vakil, E., & Blachstein, H. (1993). Rey auditory verbal learning test: Structure analysis. *Journal of Clinical Psychology*, *49*(6), 883–890.