

Discussion paper

Convergence and Divergence of Apathy and Depression

Abstract

Apathy and depression can occur as independent constructs in various diseases, however, they have also been shown to overlap in certain features. It is not always clear as to how these two constructs are practically and theoretically different (divergent) or similar (convergent). Therefore, this article aims to discuss how the relevant literature has attempted to explain the issue of divergence and convergence of these constructs and to clarify this important, albeit complex, relationship between features of apathy and depression. Finally, important considerations are outlined so that apathy and depression can be assessed and researched while taking in to account these divergent and convergent features.

Divergence

Apathy is defined as a lack of motivation pertaining to aspects of behaviour such as planning, doing things and experiencing emotions (Marin, 1996). It also includes features relating to indifference and emotional blunting, i.e. emotional neutrality (e.g. Levy, 2012; Radakovic & Abrahams, 2014). This is best exemplified through individuals not being concerned with, empathetic towards or emotionally expressive to others or their environment. Depression is most often defined through emotion, primarily as a low mood or sadness (World Health Organization, 1992). Specifically, depression is associated with feelings of dysphoria, guilt and hopelessness (Tagariello, Girardi & Amore, 2009), with these feelings often accompanied by negativity towards oneself (World Health Organization, 1992).

Based on these definitions, it seems apparent that the main divergence between apathy and depression is in relation to emotionality. While depression is characterised by emotionality itself (i.e. negative mood), apathy on the other hand is defined by emotional neutrality (i.e. no experience of positive or negative emotions). Research looking at subtypes of apathy has found emotional apathy to be least associated with depression, in healthy adults and amyotrophic lateral sclerosis patients (Radakovic & Abrahams, 2014; Radakovic et al., in press). Further, in dementia, characteristics of

apathy are thought to be indifference, blunted emotions, low social engagement, diminished initiation and poor persistence in activities or tasks (Landes, Sperry, Strauss & Geldmacher, 2001; Tagariello et al., 2009). However, apathy research is still relatively new, as there are seldom studies that have directly looked at whether these specific aspects, or subdivisions, of apathy uniquely distinguish it from depression. Currently, many of the divergence assumptions are theoretical and have yet to be tested empirically.

Convergence

Apathy and depression share some common features (e.g. Levy et al., 1998; Tagariello et al., 2009). Interest is cited as the most common overlapping characteristic between apathy and depression (e.g. Landes et al., 2001; Kirsch-Darrow, Fernandez, Marsiske, Okun & Bowers, 2006) and is noted as being a part of the definition of depression (World Health Organization, 1992). Nevertheless, interest is thought to have an associated with both motivation and mood (Landes et al., 2001; Kirsch-Darrow et al., 2006). For example, when interest in an activity exists, it requires prospective enjoyment of the activity. This in turn provides motivation for such an activity, which is associated with a positive emotion or enjoyment of an activity. Further to this, interest has been observed as a separate factor specific to apathy and depression in Parkinson's disease (Kirsch-Darrow, Marsiske, Okun, Bauer & Bowers, 2011). It is important to note that many tools that assess apathy or depression have items that ask about interest, for example interest in the well-being, activities, plans and surroundings of oneself or others (e.g. friends or family members). Therefore, it is important to be aware of and sensitive to how often these tools mention interest and this taken into account when choosing appropriate tools for assessing either depression or apathy.

Additionally, anosognosia, or a lack of insight or awareness, has in the past been considered an overlapping characteristic of apathy and depression (Landes et al., 2001). In a prospective follow up study, 199 patients with dementia were found to display anosognosia for apathy and increased awareness in relation to depression (Aalten et al., 2006). Research suggests that anosognosia may be related to depressed mood in Alzheimer's disease (Verhülndonk, Quack, Höft, Lange-Asschenfeldt & Supprian, 2013). A recent review, however, concluded that anosognosia was observed more in apathy

than in depression (Mograbi & Morris, 2014). Furthermore, one study looking at amyotrophic lateral sclerosis patients with and without frontotemporal dementia found that patients with amyotrophic lateral sclerosis with frontotemporal dementia had profound lack of insight relating to apathy, observed through as a discrepancy between self-ratings and informant-ratings of behaviour change occurring since disease onset (Woolley, Moore & Katz, 2010). It is therefore possible that anosognosia in relation to apathy and depression is specific to disease type or even severity, which could account for these mixed findings. Thus, it would be important to record both self-observed and carer/informant-observed apathy and depression, to determine how they relate to anosognosia.

Fatigue is also considered one of the main criteria for diagnosing depression (e.g. Marsh, McDonald, Cummings & Ravina, 2006; Vilalta-Franch et al., 2006). Fatigue can be defined and observed as tiredness with a gradual onset and can occur as a symptom associated with various neurodegenerative diseases (e.g. Beiske & Svensson, 2010; Lo Coco & La Bella, 2012). Apathy has also been shown to be associated with fatigue in both Parkinson's disease and multiple sclerosis (Cochrane et al., 2015). Another recent study found an association between apathy and fatigue in depressed Parkinson's disease patients (Skorvanek et al., 2015). However, fatigue itself could be masked by the lack of motivation associated with apathy, tending towards incorrect classification of fatigue. These points could serve as a prompt to revise the diagnostic criteria for depression to take into account the relationship between fatigue and apathy, along with the consideration of the latter possibly concealing the former.

Summary

It is clear that apathy and depression as constructs have very complex relationships. There are several areas where apathy and depression converge. Interest seems to be the most prominent factor in this overlap, influencing assessment of both apathy and depression. Further to this, anosognosia seems to be an important point of convergence between the two, but is variable and related to type of disease or other clinical variables. Solutions to these issues could be to carefully choose apathy and depression tools that are matched for use in specific diseases, while recording carer's/informant's rated observations, in addition to self-assessment, to overcome the issue of lack of

insight. It would also be preferable to take into account the extent to which interest is used within apathy and depression tools, choosing tools that have no or minimal reference to interest. In relation to divergence, there are areas that are thought to be independent to apathy and independent to depression. The most implicit area is in relation to emotionality, with depression being associated with emotion and apathy being associated with emotional neutrality. However, while there is some evidence supporting this, it has seldom been examined in patient populations and requires further investigation. Further research looking at subtyping of apathy, and perhaps even depression, may help clarify these dissimilarities.

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References

Aalten, P., van Valen, E., de Vugt, M. E., Lousberg, R., Jolles, J., & Verhey, F. R. (2006). Awareness and behavioral problems in dementia patients: A prospective study. *International Psychogeriatrics*, *18*(1), 3-18. doi:10.1017/S1041610205002772

Beiske, A. G., & Svensson, E. (2010). Fatigue in Parkinson's disease: A short update. *Acta Neurologica Scandinavica*, *122*, 78-81. doi:10.1111/j.1600-0404.2010.01381.x

Cochrane, G. D., Rizvi, S., Abrantes, A. M., Crabtree, B., Cahill, J., & Friedman, J. H. (2015). The association between fatigue and apathy in patients with either Parkinson's disease or multiple sclerosis. *Parkinsonism & Related Disorders*, *21*(9), 1093-1095. doi:10.1016/j.parkreldis.2015.07.007

Kirsch-Darrow, L., Fernandez, H. F., Marsiske, M., Okun, M. S., & Bowers, D. (2006). Dissociating apathy and depression in Parkinson disease. *Neurology*, *67*(1), 33-38. doi:10.1212/01.wnl.0000230572.07791.22

Kirsch-Darrow, L., Marsiske, M., Okun, M. S., Bauer, R., & Bowers, D. (2011). Apathy and depression: Separate factors in Parkinson's disease. *Journal of the International Neuropsychological Society*, *17*(06), 1058-1066. doi:10.1017/S1355617711001068

Landes, A. M., Sperry, S. D., Strauss, M. E., & Geldmacher, D. S. (2001). Apathy in Alzheimer's disease. *Journal of the American Geriatrics Society*, *49*(12), 1700-1707. doi:10.1046/j.1532-5415.2001.49282.x

Levy, M. L., Cummings, J. L., Fairbanks, L. A., Masterman, D., Miller, B. L., Craig, A. H., Paulsen, J. S., & Litvan, I. (1998). Apathy is not depression. *The Journal of Neuropsychiatry and Clinical Neurosciences*, *10*(3), 314-319. doi:10.1176/jnp.10.3.314

Levy, R. (2012). Apathy: A pathology of goal-directed behaviour. A new concept of the clinic and pathophysiology of apathy. *Revue Neurologique*, *168*(8), 585-597. doi:10.1016/j.neurol.2012.05.003

Lo Coco, D., & La Bella, V. (2012). Fatigue, sleep, and nocturnal complaints in patients with amyotrophic lateral sclerosis. *European Journal of Neurology*, *19*(5), 760-763. doi:10.1111/j.1468-1331.2011.03637.x

Marin, R. S. (1996). Apathy: Concept, syndrome, neural mechanisms, and treatment. *Seminars in Clinical Neuropsychiatry*, *1*, 304-314.

Marsh, L., McDonald, W. M., Cummings, J., & Ravina, B. (2006). Provisional diagnostic criteria for depression in Parkinson's disease: Report of an NINDS/NIMH Work Group. *Movement Disorders*, *21*(2), 148-158. doi:10.1002/mds.20723

Mograbi, D. C., & Morris, R. G. (2014). On the relation among mood, apathy, and anosognosia in Alzheimer's disease. *Journal of the International Neuropsychological Society*, *20*(01), 2-7. doi:10.1017/S1355617713001276

Radakovic, R., Stephenson, L., Colville, S., Swingler, R., Chandran, S., & Abrahams, S. (in press). Multidimensional apathy in ALS: Validation of the Dimensional Apathy Scale. *Journal of Neurology, Neurosurgery & Psychiatry*, doi:10.1136/jnnp-2015-310772

Radakovic, R., & Abrahams, S. (2014). Developing a new apathy measurement scale: Dimensional Apathy Scale. *Psychiatry Research*, *219*(3), 658-663. doi:10.1016/j.psychres.2014.06.010

Skorvanek, M., Gdovinova, Z., Rosenberger, J., Ghorbani Saeedian, R., Nagyova, I., Groothoff, J. W., & Dijk, J. P. (2015). The associations between fatigue, apathy, and depression in Parkinson's disease. *Acta Neurologica Scandinavica*, *131*(2), 80-87. doi:10.1111/ane.12282

Tagariello, P., Girardi, P., & Amore, M. (2009). Depression and apathy in dementia: same syndrome or different constructs? A critical review. *Archives of Gerontology and Geriatrics*, *49*(2), 246-249. doi:10.1016/j.archger.2008.09.002

Verhülndonk, S., Quack, R., Höft, B., Lange-Asschenfeldt, C., & Supprian, T. (2013). Anosognosia and depression in patients with Alzheimer's dementia. *Archives of Gerontology and Geriatrics*, *57*(3), 282-287. doi:10.1016/j.archger.2013.03.012

Vilalta-Franch, J., Garre-Olmo, J., López-Pousa, S., Turon-Estrada, A., Lozano-Gallego, M., Hernández-Ferrándiz, M., Pericot-Nierga, I., & Feijóo-Lorza, R. (2006). Comparison of different clinical diagnostic criteria for depression in Alzheimer disease. *The American Journal of Geriatric Psychiatry*, *14*(7), 589-597. doi:10.1097/01.JGP.0000209396.15788.9d

Woolley, S. C., Moore, D. H., & Katz, J. S. (2010). Insight in ALS: Awareness of behavioral change in patients with and without FTD. *Amyotrophic Lateral Sclerosis, 11*(1-2), 52-56. doi:10.3109/17482960903171110

World Health Organization (1992). *The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research*. WHO, Geneva.