



Developing a psychological understanding of idiopathic drop attacks

Study Protocol

Version 3

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1 Introduction

Idiopathic drop attacks (IDAs) have been defined as falls to the floor without warning, where there is no identified organic cause, despite diagnostic testing. They are not caused by malfunction of the lower limbs, changes in body or head posture, or vertigo. There is also no loss of consciousness and recovery is rapid. Despite this fast recovery, people can experience significant injuries and fear about further falls, impacting on their everyday functioning.

This phenomenon was highlighted by Stevens and Matthews (1973) who recruited 33 patients from a neurology clinic and seven from a gynaecological clinic. They also approached 100 men who were admitted for routine surgery but found that none of these had experienced drop attacks. Therefore their sample was entirely female, with onset occurring on average at age 44. Although the age-range of onset spanned from 19 to 69, in two thirds of the sample onset was between the ages of 40 and 59.

The authors ruled out obesity, vascular disease, epilepsy, vestibular disease, limb weakness and hypothyroidism as contributing to IDAs. They investigated hormonal changes, given that the age of onset coincided with when menopause could be likely to start and due to the fact that 60% of the younger patients had onset of IDAs during pregnancy. Despite this, the authors found no clear links between hormonal changes and IDAs, although 45% did experience onset either during pregnancy or within 3 years either side of the start of the menopause.

The frequency of IDAs varied greatly between individuals but ranged from two to more than 12 falls per year, usually while walking. This was more likely to happen when out of the house but over half of the sample also reported falling at home. These falls would lead to injury to the knees and often also to the hands, chest and face. 18% reported having fractured or broken bones as a result of an IDA. Given the age of onset, the increased likelihood of osteoporosis would also increase the risk of more severe injury as a result of IDAs. The authors also reported that many women would become afraid to go out due to both the risk of injury and embarrassment.

Although it is undocumented, the prevalence of IDAs could be relatively high. As part of their recruitment process, the Stevens and Matthews (1973) asked 200 consecutive patients at a gynaecology clinic whether they had experienced falls and found that 3.5% met the criteria for IDA. This suggests that this phenomenon could account for a significant number of falls in women in the general population.

There are similarities between IDAs and psychogenic non-epileptic seizures (PNES). However, IDAs are not included widely in studies of PNES, which tend to focus on 'convulsive' seizures. Hubsch et al. (2011) analysed clinical signs in 145 PNES and identified different subtypes of seizure, none of which covered IDAs. However, Galimberti et al (2003) and Devinsky et al (1996) included patients with IDA within a PNES sample, accounting for around 10% of each sample. There has been no published research investigating this group in isolation since Stevens and Matthew's (1973) study other than a small number of case reports (Butsch & Schneemann, 2014), one of which identified a woman's IDAs as occurring following recollection of traumatic experiences, suggesting a psychological mechanism (Wilner et al., 2010).

A paper which is currently being prepared for submission by Dr Hoeritzauer, Dr Carson & Dr Stone at the Department of Clinical Neurosciences, Edinburgh, identified 83 patients who had attended a neurology clinic over nine years who described experiencing these attacks. This led the authors to develop a hypothesis that IDAs are a conditioned behavioural response to negative external (environmental or situational) or internal (anxiety symptoms or dissociation) stimuli. This association is maintained through fear of collapse and/or through the fall providing relief from the negative stimuli. This type of mechanism has been highlighted previously in functional neurological disorders, where limbic regions were found to have a greater influence on motor preparatory regions when in a state of arousal (Voon et al., 2011).

As the underlying mechanism of IDAs is unknown, there is currently no treatment available. However, Hoeritzauer and colleagues report that a small number of patients saw their IDAs resolve following an explanation of the episodes as conditioned responses and the use of distraction techniques. A psychological understanding of the problem could help to identify a potential psychological intervention. Such interventions have been found to be effective for PNES, particularly cognitive behavioural therapy (Goldstein et al., 2010). This type of intervention could focus on helping individuals to manage their condition and improve the ways they cope with the anxiety surrounding future falls, rather than necessarily seek to resolve the IDAs.

This research aims to explore a psychological understanding of drop attacks. This will be investigated through the collection of qualitative data from interviews and recorded diaries from individuals experiencing IDAs. The data will be analysed using a grounded theory approach in order to better understand the onset of drop attacks, the impact of life stressors as well as thoughts, feelings and behaviour both directly before and after a IDA.

2 Aims

The main aim of this research is to develop a psychological understanding of idiopathic drop attacks. The primary research question is as follows:

- What are the predisposing and precipitating factors related to the onset of IDAs?

Secondary research questions are:

- What are individuals' thoughts, emotions and behaviour immediately prior to an IDA?
- What are individuals' thoughts, emotions and behaviour immediately following an IDA?

3 Methods

3.1 Participants

Participants will be ten individuals who are experiencing ongoing IDAs. Inclusion criteria are 1) Aged 18+, 2) IDAs occurring 6+ times per year, 3) Able to provide informed consent.

Exclusion criteria are 1) Diagnosis which would provide an alternative explanation for drop attacks.

3.2 Design

In this exploratory qualitative study, neurology outpatients with ongoing IDAs will undergo psychological assessment and complete written diaries for eight weeks. Throughout the study, participants will receive treatment as usual from a neurologist.

3.3 Procedure

Participants will be recruited from a neurology outpatient clinic at the Department of Clinical Neurosciences in Edinburgh where they will be approached by their consultant who will give them a participant information sheet. If they are interested in taking part, a meeting will be set up with the researcher to discuss the study further and obtain written informed consent.

Participants will then meet with the researcher to complete an initial psychological interview which will be audio recorded. This interview will follow a standard initial psychological interview structure and will aim to gain information about the person's experiences of IDAs, along with relevant personal and social history. The interview schedule is included in appendix 1.

Following this initial interview, participants will be asked to record written accounts of any IDA, detailing their thoughts, physical arousal, feelings and behaviour, as close to the event

as possible. They will be encouraged to record detailed accounts, outlining the period before, during and after the episode, in order to identify any potential triggers. They will be shown an example of a completed diary in order to help them to understand what they need to do. Participants will be asked to record such events over a period of eight weeks during which the researcher will contact them fortnightly to discuss any difficulties or concerns. If participants do not experience any drop attacks during this period, they will be asked if they want to continue recording diaries for an additional two to four weeks.

Following completion of this period, participants will meet again with the researcher to return the diaries and discuss any patterns noticed in the interview and diaries. The researcher will also answer any further questions that the participant has about the study.

3.4 Measures

3.4.1 Semi-structured assessment interview

This audio-recorded 60-minute interview will follow the format of an initial psychological assessment and will allow discussion of presenting problems and relevant personal and social history. This will allow potential predisposing and precipitating factors to be identified. Participants' experiences of IDAs will also be discussed, focussing on thoughts, feelings and behaviour before and after the episodes. The participants will also be asked about the impact that these have had on their everyday functioning.

3.4.2 IDA record

Participants will be asked to write an account of any IDAs. They will be shown an example diary and will also be given a prompt sheet, asking them to recall any triggers, feelings, physical arousal, thoughts and behaviour both directly before and after the episode. This diary will be completed by participants as close to the episode as possible.

4 Sample size

In order to address all three of the research questions, a qualitative approach will be used. An overall sample size of ten should be sufficient to allow themes to be identified. A purposive sampling method will be used to recruit younger participants as well as those who are in the average age range for onset. This will allow any differences between these two groups to be explored further. As the inclusion criteria specifies 6+ IDAs per year, this will ensure a fairly homogenous sample in terms of frequency of IDAs.

There is a sample of approximately 40 patients who had ongoing drop attacks in July 2016 which can be recruited from. One to two new referrals per month are currently being made to

Dr Jon Stone, and these patients can also be approached. This is a relatively small pool and there can be some unwillingness to engage with a psychological approach within the functional neurological population. However, as this study is aiming to help better understand participants' experiences, rather than investigating psychological treatment, this may enhance engagement. Attrition is also a factor but, as the primary research question relies on information from the initial interview, the risk of this is reduced. Therefore, recruiting a purposive sample of ten participants should be achievable.

5 Analysis

The content of the psychological interviews and diaries will be analysed using a grounded theory approach in order to meet all of the study objectives. Using both initial interviews and recorded accounts will allow information to be obtained from different viewpoints, enriching the data. This data will be coded by initially naming each segment of data and then synthesising the most common codes to identify themes. From these, theories can be developed regarding predisposing and precipitating factors. Themes regarding thoughts, emotions and behaviour can also be explored.

Participants will be invited to review the themes that were identified within their interviews. This will take the form of the researcher presenting the themes and recording whether participants agree with them or not. This will help the researcher to ensure that the analysis is valid.

6 Timetable

- Recruitment start – January 2018
- Data collection start – January 2018
- Data collection finish – December 2018
- Analysis – January 2019
- Article ready for submission – April 2019

7 References

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