



## WHAT IS THE EFFECT OF DYSLEXIA AND MEARES-IRLEN SYNDROME IN ADULT VOCATIONAL STUDENTS?

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### Abstract:

This exploration found that six of the 22 adult students with dyslexia presented with Meares Irlen Syndrome (MIS). This comorbidity was diagnosed in 27% of participants. Several adult students have no diagnosis of MIS, yet had symptoms of this condition. There was evidence that a further ten participants exhibited symptoms; some had a reaction to light when using computers; others had migraines when reading books or doing other visual work, and others had difficulty concentrating on written work for more than one hour. It is a quandary for educators who support adult students with dyslexia, in preparing lesson plans for inclusion when there is limited research in the field of education and MIS. In this social constructionist study, 22 diagnosed adult students with dyslexia were interviewed within five Queensland Technical and Further Education (TAFE) Institutes/Colleges, regarding their reading and literacy abilities.

**Keywords:** adult learners, educational support, Meares-Irlen Syndrome, dyslexia, visual stress and learning

### 1. Introduction

In Australia, a review of adult students who have dyslexia undertaking studies in five Queensland Technical and Further Education (TAFE) contexts, discovered a subset of adults who have Meares-Irlen Syndrome (MIS) and the common and different symptoms that exist in both conditions was explored. In this study, there was the incidence of comorbidity, of Meares-Irlen Syndrome (MIS) and Developmental

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Dyslexia, known as dyslexia in this study. This article will examine the experiences of clients with MIS and Dyslexia in TAFE Colleges, and the comorbidity of participants in this research.

Meares-Irlen Syndrome is also known as Scotopic Sensitivity Syndrome and affects between 5% of the community (I. Kriss & B. Evans, 2005) and 14% as classified by another specialist (Irlen 2010 pp. 77). Scotopic Sensitivity Syndrome (SSS) is known as either Irlen Syndrome, Meares-Irlen Syndrome, and Visual Stress Syndrome and it is a visual perceptual processing disorder. It is not an optical problem (Irlen Syndrome Foundation, 2017), but a problem with the brain's ability to process visual information (Irlen Syndrome Foundation, 2017, p. 1).

Comorbidity is the existence of one or more coexisting medical conditions, that occur together, with an initial diagnosis (Mosby, 2016, p. 407). In an earlier study of MIS, Kriss and Evans, (2005) identified that there is also a correlation between Dyslexia and Meares-Irlen Syndrome. In a controlled study of children aged between seven and twelve years, it was noted there were common characteristics in children with MIS and dyslexia.

Meares Irlen-Syndrome tends to run in families and has not been identified through other standardised educational or medical testing (Irlen Syndrome Foundation, 2017), despite the fact that there have been numerous studies on the visual distortions that occur in people with visual stress (Singleton, 2009b; Singleton & Henderson, 2007; Talcott et al., 1998). People who experience symptoms of visual stress suffer from visual perceptual distortions, which can be alleviated by using prescribed coloured filters for each individual, known as Irlen lenses (Kriss & Evans, 2005, p. 350). The lenses are framed and the individual wears these as glasses, not unlike prescription lenses.

### **1.1 The Incidence of Meares-Irlen Syndrome and Dyslexia**

As previously identified, the incidence of Meares-Irlen Syndrome in one study is 5% of the population (Kriss & Evans, 2005). There have been many studies of the incidence of Meares-Irlen Syndrome, in the general population as well as in other populations such as reading disabled. Robinson et al., (1995) found that the incidence of MIS in students in two secondary schools in Australia was 24% and 20% respectively. (Robinson et al., 1995). Irlen maintains that 14% of the general population and 45% of the reading disabled population can be helped with Irlen overlays and filters. (Irlen, 2010 pp. 75, 77).

Australia's incidence of dyslexia is identified by two organisations, firstly, the *Australian Dyslexia Association* (2018) and secondly, a *Professional Working Party for a Government Department*, (2010), reporting to the then Labour Minister for Workplace Relations (Australian Dyslexia Association, 2018; Bond et al., 2010). The first organisation, The *Australian Dyslexia Association* (2018), suggested that 20% of the population have some form of dyslexia, as described by the International Dyslexia Association (Australian Dyslexia Association, 2018, p. 1), by Moats and Dakin (2008).

The second organisation, the professional working party, consisted of doctors; educators; psychologists; educational management personnel; and people with a disability (Bond et al., 2010).

This organisation, reported by Bond et al. (2010) from the professional working party, identified that between 5-10% of adults and children have problems related to dyslexia, that affect their everyday functioning. In that research, the roundtable members reviewed the Australian Bureau of Statistics (2006) reporting that 52% of people aged between 15-19 years of age had literacy levels that were insufficient to complete daily activities and accomplish workplace tasks (Australian Bureau of Statistics, 2006 as cited by Bond et al. 2010). The incidence of dyslexics who have both dyslexia and visual stress is approximately 20%; these groups have a diagnosis of Meares-Irlen Syndrome (Evans & Allen, 2016) and dyslexia (Kriss & Evans, 2005).

## **1.2 History and Symptoms of Meares-Irlen Syndrome**

Helen Irlen first called the condition Scotopic Sensitivity Syndrome (SSS) and later changed the name to Irlen Syndrome (I/S). (Irlen, 1991; Turner & Rack, 2006, p. 12). However, Olive Meares was the first to promote the use of coloured plastic overlays for participants (Meares, 1980) and this was followed by Irlen in 1983. As a result, Meares-Irlen Syndrome is the terminology most often used. Some researchers add the term Visual Stress and call the condition Meares-Irlen Syndrome Visual Stress (MIS Vis). In this article, Meares-Irlen Syndrome (MIS) is the terminology used. (Loew, Marsh, & Watson, 2014; Loew & Watson, 2012).

The many Meares-Irlen Syndrome symptoms include the following: a) letters wave in front of the reader or fall from the page; b) the words appear as though they are underwater and are distorted and not clear when reading due to the perceived visual motion. (Robinson, 1994; Stein, 2003). Migraines and headaches are common with sufferers often after reading for a short period of time (Loew et al., 2014). The effects differ between individuals and are dependent on the severity of the condition and comorbidity (Loew & Watson, 2013). The condition occurs when there is cortical hyperexcitability (Wilkins, Huang, & Cao, 2004) and pattern glare (Wilkins et al., 1984). Wilkins et al., (1984) recognised such challenges as visual stress (VS) in people having MIS.

## **1.3 Dyslexia**

Dyslexia is a neurological disability that affects people individually (Reid, 2016). Furthermore, dyslexia creates challenges that affect the abilities in people to function adequately to undertake employment without support. These difficulties include reading, spelling, and writing and these affect the ability of students to express themselves in written language (Mortimore, 2008; Mortimore & Crozier, 2006; Reid, 2009; Singleton, 2009a).

Furthermore, dyslexia affects a person's ability to time-keep, remember immediate information, become organised, to plan-ahead, comprehend, communicate socially, proofread and can also cause spatial difficulties (Caskey, 2017; Reid, 2016, p.

56). As previously identified, people with dyslexia can also suffer from Visual Stress Disorders; despite these groups having a different diagnosis (Evans & Allen, 2016). Some of the symptoms of MIS are comparable to those of people who have dyslexia (noted below).

An early instrument that identifies symptoms of dyslexia is the *Bangor Dyslexia Test* (Miles, 1982). His criteria for being dyslexic included: a) Left-Right Confusion; b) b-d confusion; c) repeating polysyllabic words; d) difficulty with months forward and backwards; e) difficulty with subtraction and times tables; f) difficulty with digits forwards and backwards; and g) family history (Miles, 1983). As can be seen with these difficulties, none have to do with the way a person sees; rather they have to do with difficulty with logical, sequential and ordered processes. Dyslexia is a neurological disability and people have strengths with creative and lateral and “big picture” thinking (Mortimore, 2008). Many artists (e.g., Tom Cruise, Whoopie Goldberg) and entrepreneurs (e.g., Richard Branson) are dyslexic (Freney, 2018). Accordingly, in the symptoms of both conditions below, (b) and (c) and (f) below are clearly MIS\* and symptoms (d) and (e) are dyslexia. Symptom (a), reading and spelling difficulties, (which is not really a symptom, but more the effect of symptoms) is common to both conditions (Freney, 2018).

Common symptoms of Dyslexia and Meares-Irlen Syndrome\* are listed

- a) reading, writing, and spelling challenges\*;
- b) visual blurring and brightness of light\*;
- c) headaches/migraines from reading\*;
- d) organisation of materials;
- e) planning of events; and
- f) words were falling from pages or submerged under water\*, as appeared by participants (Caskey, 2017; Evans & Allen, 2016; Loew & Watson, 2013; Reid, 2009, 2016).

The symptoms of MIS are clear – all have to do with the neurological vision system – not eyesight. Light causes stress in the nervous system, which in turn results in distortions in the environment and on the printed page (Freney, 2018). The stress often results in headaches, migraines and fatigue. This is exclusively to do with what people SEE. It is a Visual Processing Difficulty (Freney, 2018; Singleton, 2009; Wilmer, Richardson, Yue, & Stein, 2004). This study reviewed the research question and the methods to highlight the challenges faced by people who suffered from both Meares-Irlen Syndrome and dyslexia.

#### 1.4 Research Questions

This study has posed numerous questions regarding whether the relationship and comorbidity of dyslexia and MIS are evident and needs further investigation. It is problematic with adults, particularly, because many do not know whether they have dyslexia or visual stress syndrome or MIS. This article reviews a number of challenges for academics when supporting students with dyslexia and Meares-Irlen Syndrome and posed the following written question:

How many TAFE dyslexic students have the co-morbidity of Meares-Irlen Syndrome?

## 2. Research Methodology

This study utilised qualitative research to explore the challenges of adult students with dyslexia and MIS within Queensland TAFE Colleges. The epistemology used social constructionism as framed by Gergen (2005), who united the social and cultural aspects of research together. The case study methodology was utilised to compare cases (Yin, 2003, 2009), such as the Disability Service Officers (DSOs), TAFE Colleges, and adult participants with dyslexia. (Refer to Table 1 below).

**Table 1: Research Design**

<b>Epistemology</b>	Social Constructionism	Gergen (2005, 2009)
<b>Methodology</b>	Case Study	Yin (2004, 2009)
<b>Theory</b>	Street-Level Bureaucracy	Lipsky (2003, 2010)
<b>Methods</b>	Semi-Structured Interviews	Oppenheim (2003)

In this study, there were 22 adult student participants and six Disability Officer participants who were selected to participate in this research. All adult student participants were diagnosed dyslexics or a diagnosed disability relating to reading, writing, spelling, and textual comprehension undertaking a Certificate III or above in TAFE. This study did not include students with Intellectual Impairments. Many of the participants were enrolled in Certificate IV, Diploma, and apprenticeships (see Table 2).

**Table 2: Research Participants**

<b>Participants</b>	<b>Level of Training</b>	<b>Numbers</b>
Disability Service Officers	Certificate IV - Masters	6
Adult students with dyslexia	Certificate III – Diploma Apprenticeships	22

### 2.1 Current Research

This data became evident after the convergence of cases, where the specific condition of MIS was identified in numerous cases. Many adult TAFE students who have dyslexia also have MIS. Furthermore, this study also reviewed the percentage of students who suffered from the comorbid conditions, dyslexia and Meares-Irlen Syndrome. There was 27% of comorbid participants, who had to navigate through the everyday activities and learning challenges in TAFE (Caskey, 2017, pp. 298-306). The percentage may be under-represented because some adult students in that study were diagnosed with MIS, yet did not wear the glasses and refused to accept the diagnosis. These adult students were not counted in the percentage noted above. When reviewing participants with MIS and dyslexia, there are commonalities, particularly in their reading difficulties.

Adult students with dyslexia, on disclosure, were supported by DSOs who provided them with: a) help with educational issues; b) mentoring; c) negotiating with teachers and senior staff; negotiations with TAFE staff and potential employers on behalf of the students supports; d) further psychological and MIS testing and e) advocated for adult students throughout their programs and in transitioning them into workplaces and employment.

Furthermore, adult students were listened to by DSOs for the first time in their educational journey. In one college, some students who were not progressing in their training due to visual stress symptoms were identified and the DSO set up the appointment and funding for testing students, who visited a local professional and were tested for MIS (Freney, 2018). On having been tested and diagnosed with Irlen Syndrome by this specialist, one student stated:

*"I put those blue glasses on, and I couldn't believe there was no ... what did he call it, the river effect? I call it the stomach effect where the paper stops moving. I couldn't believe it, I nearly flipped! I thought wow! This is how you see the paper, and this is incredible. It was amazing, and the difference was incredible."* (Florence, aged 35– 44).

#### **4. Adult Students with Dyslexia**

This study also reviewed the percentage of students who experienced comorbidity with dyslexia and SSS, which was significant for this small number of learners. The percentage diagnosed with SSS was not precise; in that some adult students had previously been diagnosed and would not accept the diagnosis. The students who did not wear their glasses were not included in the 27% diagnosed MIS. Their perception was that the glasses did nothing for their vision. Other possible explanations could be perceived social embarrassment wearing the tinted glasses, and a refusal to accept that they might be flawed in some way (Freney, 2018).

This research identified that those comorbid adult students with dyslexia and MIS, were greatly affected in their choices for learning and employment. Some adult students in this study had behavioural challenges in their early lives. Four students did not attend school and truancy was evident; two students had difficulties in communicating in society; and yet none reported any brushes with the law. It has been illustrated in this study that people with dyslexia have severe difficulties with communication and have often shown their deviance in social contexts.

*"I did um, lots of, um, anger management programs, and I actually had a life coach."*  
(Beatrix, aged between 25-34)

*"... it didn't matter whether I spent 5 hours doing an assignment; I'd fail it, or whether I smoked on the oval with the boys from TAFE [missing classes], I'd still fail it so, smoking on the oval was a lot more fun than sitting doing that."* [reading and writing the assignment] (Beatrix, aged between 25-34)

*"... because I hated teachers, and that was the only way I could describe it, they were just, as far as I was concerned, were just all nasty, um and I had shocking high school teachers, um, who just basically, treated me like I was an idiot, so I started acting like one..." (Beatrix, aged between 25-34)*

*"I have very little memory of my schooling, to be honest. I don't remember hardly any of my schoolings. I must have blocked most of it out because I can remember - primary school - I remember a little bit of grade 6 - not much at all - high school I remember maybe 3 or 4 days." - that's about it ... yeah, I finished my year 10. I haven't done my High School - but it doesn't matter I didn't need to... (Tracey, aged between 45-54)*

*"Harriet suggested that her family were unsupportive of her going to TAFE. There were instances where her family excluded her because she wanted to do something for herself."*  
(Harriet, aged between 25-34)

One lady did have difficulty with her behaviour, and these problems were resolved after several months of therapy, to address her daily challenges with dyslexia. The diagnosed MIS and dyslexia students experienced challenges in reading, writing, spelling, and organising and planning their daily activities. It was noticeable that adult students became frustrated with themselves for not being able to achieve like their peers. This is likely to result in the reported difficulties for adult students in family situations and within schools.

Furthermore, adult students with dyslexia identified they gained support from DSOs, which was the catalyst for their educational success. The strategies DSOs used for supporting students included: a) the provision of advice; b) assistance with tutoring and mentoring teams for educational support; c) DSOs negotiated on adult students' behalf; d) adult students trusted DSOs and their opinions regarding training and employment; and e) DSOs advocated for adult students throughout their programs.

## **5. Discussion**

Reading is a primary skill required by every adult in today's literate society and those who have challenges with reading, often fall behind peers in learning (Jones, Branigan, & Kelly, 2008; Shaywitz & Shaywitz, 2005; Snowling & Hulme, 2007). If individuals have difficulties in reading, spelling or writing, there is a reluctance of students to complete their schooling, which is on the minds of politicians, teachers, and parents (Mays, 2017). Mays (2017) suggests that when reading in children presents a problem, it often affects students' educational well-being and their relationships with peers. In learners who have dyslexia, there is often stigmatisation, bullying, being ignored and humiliated by peers (Goffman, 1974; Riddick, 2000; Tanner, 2010).

Furthermore, adult students with dyslexia have challenges in progressing forward with learning activities, in contexts of TAFE or university. These opportunities are limited because of their literacy challenges from schooldays (Caskey, 2017, pp. 101,

102). The lifelong ambition of many participants in this study was to gain employment that would be beneficial for them in their later life. Adults/students found they were marginalised by some people, as they could not read or write to further contribute in community life (Caskey, 2017; Keogh, 2012; Ryan, 2011; Tanner, 2010; te Riele, 2006). This can have lifelong difficulties for people with dyslexia and MIS.

Macdonald (2010) found that some adults with dyslexia are jailed for various misdemeanours, due to their difficulties with reading and their lack of schooling resulting in low self-esteem and resentment against society. Whichard et al., (2000) have reported that inmates in the Colorado Correctional system in the USA, who were screened for MIS, eighty percent were at the severe end of the spectrum. (Whichard et al, 2000). These data support the notion that delinquency can occur if there is a lack of advocating and supporting people with dyslexia and MIS, throughout their schooling and beyond. This facet of behaviour is illustrated in the articles reported below.

In earlier studies, Critchley (1968) identified in a sample of 477 children in the London Remand Home and Classification Centre, that 60% of children were classified as “delinquent” due to their anti-social behaviours, and their reading problems. These young people demonstrated anti-social behaviour in later life, linked to criminality (Critchley, 1968). Macdonald (2012) quoted Critchley (1970 p.57) when he argues that truancy from schools, is associated with anti-social behaviour in students with dyslexia. Hence criminality may follow the pursuits of these children in later life (Critchley, 1968).

An Australian news article has reported that in one of the gaols, people with Specific Learning Disabilities and dyslexia are deemed to have intellectual disabilities and were also maltreated by wardens and other prisoners (Graffam & Shinkfield, 2012). Soeckev and Killaelia (2018) concurred with Graffam & Shinkfield (2012) identifying disabled people were treated inappropriately by correctional officers and by other prisoners. Furthermore, the ABC told of further atrocities to prisoners with disabilities in gaols, which depicts further misery for those who have difficulties expressing themselves (Selvaratnam & Hermant, 2018). This is a double whammy for people who have a disability, who are further marginalised and often abused within gaols (Selvaratnam & Hermant, 2018). Gaols were supposed to keep people with disabilities safe from themselves and others (Selvaratnam & Hermant, 2018).

Moreover, in this study, adult students with dyslexia had been accepted by their collegial peers, due to the increased inclusive pathways provided for them by the DSOs and the disability staff in metropolitan and regional TAFE contexts. On enrolment, most of the adult students perceived that learning was a challenge until they met with the DSOs. An appointment was often made with the DSOs in their respective colleges, so adult students could gain support and services for their learning. This advice for many students was a blessing; as they all progressed in learning and gained successful outcomes, such as employment, further training, or transitioning into higher education (Caskey, 2017).



## 6. Conclusion

With such a travesty with life skills, is it any wonder that people with comorbidity, dyslexia and MIS, have such difficulty expressing themselves appropriately and accessing further education and employment. Once the child or adolescent fails in their schooling, it appears there is a downward spiral, due the inability to access suitable study or employment, toward a steady path to unemployment (Macdonald, 2012). Reading is a basic skill that everyone can learn with the aid of technology, despite the challenges experienced by people with these comorbidities, dyslexia and MIS.

Those with MIS, have the added difficulties with headaches from reading or migraines and the floating effect of letters. These failures can affect the way in which people with both conditions can become disruptive and fall into bad company, such as delinquency and criminal activity. Humans have a need to be accepted by a peer group. The inability to access suitable employment, due to their reading and writing abilities, provides the nexus for people to move into the wrong crowd, and to be accepted by similarly disadvantaged people, who have a resentment against society.

As noted in previous paragraphs, there is a definite link between inability to express oneself and to have a voice in the community, when some fall by the wayside and into crime (Macdonald, 2012). Many people with dyslexia are easily led into crime, as many do not have the capacity to clearly analyse the consequences of their actions (McDonald, 2009; Reid, 2016). This article has highlighted the link between dyslexia, and crime associated with their inability to read and it is time that governments address these issues before more youth start entering our court systems and become criminalised.

In this recent study, there was a demonstration that inclusion and appropriate support services are imperative for adult student success. As adult students spoke of the DSOs, they expressed the most complimentary remarks regarding respect and support provided by this group. Adult students identified that DSOs were their advocate who assisted in their learning needs and became their critical friends in TAFE Colleges.

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