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The experience of visual art for people living with mild-to-moderate vision loss

Meredith J. Cheng^a, Emilie M.F. Rohan^b, Bhim B. Rai^b, Faran Sabeti^{b,c}, Ted Maddess^b and Jo Lane^d

^aAustralian National University Medical School, College of Health and Medicine, Canberra, ACT, Australia; ^bEccles Institute for Neuroscience, The John Curtin School of Medical Research, The Australian National University, Canberra, ACT, Australia; ^cDiscipline of Optometry, Faculty of Health, University of Canberra, ACT, Australia; ^dNational Centre for Epidemiology and Population Health, College of Health and Medicine, Australian National University, Canberra, ACT, Australia

ABSTRACT

Background: Visual art can enhance wellbeing and quality-of-life; however, the experience of visual art for people with mild-to-moderate vision loss has not been examined.

Methods: Eight participants (6 females, 2 males; Mean age = 81 years, SD = 7.9, range 70–91 years; 4 with mild vision loss and 4 with moderate vision loss based on binocular visual acuity) completed a mixed-methods study comprising: a semi-structured interview on visual art experience; an eye examination; and questionnaires about visual functioning and quality-of-life.

Results: Various themes were identified: visual perception of art (e.g. altered colours, visual distortions, etc.), viewing conditions, elements of art, personal preference, deriving meaning, appreciation of art, impact of impaired visual perception, and social aspects of art.

Conclusions: The overall experience of art is influenced by how an individual sees, perceives, and makes meaning from art. Even mild vision loss can impair this experience and impact emotional and social wellbeing.

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KEYWORDS

Visual arts; vision loss; qualitative data analysis; thematic analysis

Background

Over 13 million Australians live with chronic eye conditions, with 93% of people aged 65 years and over experiencing some form of vision loss (Australian Institute of Health & Welfare, 2021). With the prevalence of total or partial blindness in one or both eyes being approximately 0.6–0.7% (Australian Institute of Health & Welfare, 2021), the greater burden of mild-to-moderate vision loss is often overlooked. Global studies concur that milder forms of vision loss are most common, and due to the ageing population, these numbers are expected to rise within the next 30 years (Bourne et al., 2021).

The impact of mild-to-moderate vision loss on everyday functioning has been thoroughly examined in different areas including: driving (Patterson et al., 2019); reading (Rubin et al.,

CONTACT Meredith J. Cheng  meredith.cheng@anu.edu.au  College of Health and Medicine, Australian National University Medical School, Canberra, Australia

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2006); and face perception (Lane et al., 2019). In these studies, it was not expected that people with very mild vision loss would be impacted in their everyday life by their vision loss; however, reduced vision due to mild-to-moderate vision loss can reduce areas of everyday functioning and negatively influence quality-of-life (Lane et al., 2018).

The ability to engage with visual art has been shown to improve wellbeing and quality-of life (Secker et al., 2011). Previous studies have reported on the experiences of art for people with moderate-to-severe vision loss. For example, Szubielska (Szubielska, 2018) examined how people who are congenitally blind experience and create art, and how their artworks are perceived by people without vision loss. From an alternate perspective, Vaz et al. (Vaz et al., 2020) investigated the experiences of blind and visually impaired visitors to museums. Researchers have also focused on how to improve the experiences of people with moderate-to-severe vision loss at museums and art institutions via different types of assistive technologies including haptic interfaces and replicas of artworks (Vaz et al., 2020), and the use of multi-sensory elements including patterns, temperature, scent, music, and vibration (Cho, 2021). To provide better access and enhance the experience of art for people with vision loss, art access programs are widely available at art institutions (including the National Gallery of Australia); however, such programs are mainly targeted towards people living with severe vision loss, with few programs specifically designed to enhance the art experience for people with mild-to-moderate vision loss.

Therefore, given the significant number of Australians living with mild-to-moderate vision loss (Australian Institute of Health & Welfare, 2021), and the impact that even mild vision loss can have on everyday functioning and quality-of-life, it is anticipated that the experience of art is affected for people with mild-to-moderate vision loss. To examine these outcomes, this study aims to address the following questions: what is the experience of visual art for people living with mild-to-moderate vision loss and how does mild-to-moderate vision loss impact interactions with art and quality-of-life?

Research approach and methodology

Study design and procedure

This was an exploratory mixed-methods study, using purposive sampling to interview people with mild-to-moderate vision loss. In this study, participants were asked to: (a) complete a semi-structured interview about their experience of visual art; (b) describe six art images (including paintings and photographs) presented on a computer screen; (c) undertake a standard eye examination; (d) provide demographic and health information; and (e) complete standardised questionnaires about everyday visual functioning, psychological distress, and quality-of-life. Participants attended two sessions: the first occurred in person and included the interview, viewing and describing the art images, and eye examination; the second was conducted over the telephone where the demographic and health questions and standardised questionnaires were administered verbally. The semi-structured interview and vision assessment took approximately 90 minutes, and the telephone interview took approximately 60 minutes to complete.

Participants

Eight participants (P1 to P8) completed the study (6 females, 2 males; *Mean age* = 81 years, *SD* = 7.9, range 70–91 years). [Table 1](#) summarises the demographic characteristics of participants, as well as the vision and questionnaire results. The mild and moderate vision loss groups only differed in their binocular visual acuities (VA) ($t(6) = 6.54, p = 0.0003$, rank sum $p = 0.029$). Volunteer participants from previous vision studies at the Australian National University (ANU) were invited to participate and the study was approved by the ANU Human Research Ethics Committee (2020/653), and informed written consent was obtained. To be eligible for the study, participants had to be 18 years or over and have self-reported difficulties seeing visual art in their everyday life due to their vision loss. Participants who reported no vision loss were excluded. Recruitment stopped when saturation was reached in the qualitative interviews (i.e. when no new insights were reported); the standard criterion for sufficient sample size in qualitative research (Guest et al., 2006). The severity of vision loss was classified using the World Health Organization criteria (World Health Organization, 2022): where mild loss included participants with binocular visual acuity (BVA) worse than 6/6 and better than or equal to 6/18, and moderate vision loss included participants whose BVA was worse than 6/18 and better than or equal to 6/60. BVA is assessed with both eyes open to reflect the participants' visual abilities when they viewed the art images.

Interviews

The semi-structured, face-to-face interviews were based on thematic analysis (Braun & Clarke, 2006) and included theoretical (top-down) questions from current vision-based research (e.g. Lane et al., 2018), questions about the elements of art (line, shape, form, space, colour, and texture), and inductive (bottom-up) questions to explore the experiences of visual art by people living with mild-to-moderate vision loss. The interview was divided into five main sections: importance of and engagement with art, vision and art (how art looks e.g. if they see blur or distortions, and viewing conditions e.g. distance and lighting), elements of art (what stands out when viewing artwork), experience of art (how art makes them feel, how ability to see art impacts quality-of-life, and barriers to seeing art), and future engagement of art (for the interview transcript, refer to Appendix A).

Interviews were audio-recorded and transcribed verbatim. The transcripts were independently analysed by two authors to extract themes or patterned responses in the data. Themes identified by the authors were reviewed and discrepancies resolved via consensus (Barbour, 2001).

Viewing art images

Participants were asked to view six images of two-dimensional artworks (including paintings and photographs) on a computer screen that were selected to represent the well-established elements of art; line, shape, form, space, colour, and texture, as used by the J. Paul Getty Museum and the National Gallery of Australia (NGA). While viewing each image, participants were asked to describe what they could see, and then asked about their visual experiences of the specific elements in each image. The artworks selected

were: Sam Atyeo, *Organised line to yellow* (c.1933); Alexandra Exter, *The music lesson* (c.1925); James Cant, *Objects in a landscape* (1936); Fernand Léger, *Les Trapézistes* (1954); Micky Allan, *The prime of life no.1 (woman wearing yellow jacket)* (1979-80); and Georges Seurat, *Study for Le Bec du Hoc, Grandcamp* (1885). These images represented the aforementioned elements respectively and can be accessed via the NGA's online collection.

Vision assessment and ophthalmic examination

Following the interview, participants were asked a series of questions regarding their general and ocular health history, and undertook an eye examination. Uniocular and binocular visual acuities were measured using an Early Treatment Diabetes Retinopathy Study (ETDRS) Chart 2. Distance glasses were worn for visual acuities measurements when required. To assess peripheral vision, we used the 19-region supra-threshold N-30-5 Frequency Doubling Technology (FDT) Screening test of the Matrix perimeter (Carl Zeiss Meditec, Dublin, CA) testing the central 54 degrees. The N-30-5 FDT Screening test only reports per-region p-values, therefore, the 19 p-values per eye were converted to logits, and the mean logit values formed a peripheral function score.

The macula was examined using a Spectralis Optical Coherence Tomograph (OCT) (Heidelberg Engineering, GmbH, Germany). The OCT measures B-scan images through the layers of the retina, using infrared light allowing sub-surface features of the retina to be seen. Relevant features include new blood vessels producing neovascular (wet) age-related macular degeneration (AMD), or retinal thinning by geographic atrophy (dry AMD). A posterior-pole scan containing 62 B-scans of the central ± 3 mm of the retina was obtained for each eye.

Questionnaires

For the second session, participants were asked standard demographic and general health questions, and asked to complete: 1) The National Eye Institute Visual Functioning Questionnaire (NEI-VFQ-25); Interviewer Administered Format plus appendix (Mangione et al., 2001) to measure everyday visual function; 2) the Kessler Psychological Distress Scale (K6) (Kessler et al., 2002) to measure psychological distress; and 3) the Assessment of Quality of Life (AQoL)-8D (Richardson et al., 2014) to measure quality-of-life.

Statistics

Pearson correlations, Standardised Effect-sizes, t-tests for unequal numbers, Wilcoxon rank sum tests, and stepwise linear models and their cross-validation was performed with Matlab (The MathWorks ver 2020b, Natick, MA). The Standardised Effect-sizes were computed as Hedge's *g*, which is Cohen's *d* corrected for small sample size. Power calculations were done with G*Power (ver 3.1.9.6, U Keil).

Results

Thematic analysis

Throughout the interview, participants described their experiences of art, highlighting the complex and multidimensional interactions between their vision, art, viewing conditions, and overall experience. The qualitative analyses yielded independent yet interrelated themes (patterns of responses) which included: visual perception of art (what they can see e.g. blur or distortions, etc.), viewing conditions, elements of art, personal preference, deriving meaning, appreciation of art, impact of impaired visual perception, and social aspects of art. For each theme, representative quotes from individuals in mild and moderate vision loss groups are included here (see Appendix B for additional participant quotes for each theme).

Visual perception of art (what a person can see)

When asked about their viewing of visual art, all participants reported encountering some form of visual disturbance, including: blur (P4, P5, P6, P8), altered colours (P6, P7), visual distortions, e.g. straight lines appearing wavy (P6, P7), dark spots (P2, P5, P7), and floaters (P1, P3).

If I'm seeing something that is projected right in front of me, I see it if I look to the side. (P4)

It's just not clear. It's like I'm looking at you right now, and what can I not see? I don't know. But they say with that dry form of macular degeneration that it's like if you had a beautiful woven Persian carpet and after a while, it wears out so some of it is not quite as defined as well. (P6)

Viewing conditions (distance and lighting)

Four participants (P4, P5, P6, P7) discussed the importance of viewing distance when looking at art, and two described not being able to view artworks at their preferred distance due to gallery restrictions.

I also like to stand away from [artworks]. Not that I can see much that is going on, but I get the idea of the whole thing. (P5)

I can probably see from, maybe, two feet? And if I'm not allowed to get any closer than that, that's fine, but if it's something that's quite detailed . . . unless I'm sort of right up close and I need to sort of move my head, and that's when of course the little man in the suit [the attendant at the gallery] comes and taps me on the shoulder and tells me I'm too close. (P7)

Participants with moderate vision loss (P5, P7, P8) had an explicit preference for bright light, compared with those with mild vision loss who either had no preference or recognised that their preferences were dependent on the art display.

It depends on the display: whether they want you to see it, the lay of the light. Like the War Memorial and their dioramas, some of them are bright and some have low light. (P1)

As I said, the more light I can have, the better . . . when you've got macular degeneration, it's all about the light. (P7)

Elements of art

Participants were asked what stands out the most when they view an artwork (generally, and in relation to the specific elements of art). They all acknowledged the importance of colour, as well as their personal preferences related to other elements.

I suppose colour has a lot to do with it . . . something that stands out and grabs your attention. (P1)

In the portraits, the likeness, otherwise the proportion and colour. (P3)

I suppose the first thing one notices is the colour, and then the form, shape of what the object is depicting, at least what object the artist is depicting, and so on. (P4)

Personal preference

All participants had strong views about what type of artwork they liked or disliked, regardless of how they rated the importance of art. The elements of art and the genre of the artwork were factors that linked to personal preference.

It's very hard sometimes to explain why you like something. Other times I know perfectly why I like something, because it takes me back somewhere, or makes me remember something, looks very like a place I that visited when I was a child . . . so I can't explain it. It's just there. (P2)

I wouldn't choose to have that sort of painting in my house. It's not because I object to it, but it wouldn't be my choice of painting. (P4)

So straight away, that's interesting because I quite like abstracts as such. And again, I love the tones, so the colours. (P6)

Deriving meaning

Participants regularly described their need to derive meaning from the artwork, which was often dependent on their ability to see it, and/or their personal preference.

I'm not too sure what they are trying to portray, that is the thing with abstracts. All I can see is lines, plenty of colour, but obviously there's an underlying message . . . I really can't see any significance, what it's all about. (P1)

It's not a picture I would want in my house . . . not because I have any objection to it but because it doesn't sort of mean anything to me. (P4)

There is probably much more in it than I can see and I think that is something that we probably lack as our eyes get worse. We don't see everything that is there to see. It's not that it's not there; I can't see it, I can't interpret it. (P5)

Appreciation of art

Participants described their general appreciation of art and how their vision loss impacts this. Interestingly, these effects were experienced across all participants, from P1 with very good binocular vision to P8 with significantly poorer vision.

That looks like an Impressionist [artwork] ... it gives the sunny feeling almost, you know, vibrance, sunny, almost like a chimera ... but despite all this it's still very beautiful. (P2)

My appreciation of art – pictures and objects, artistic creations – it is like a thing of beauty. But now, I have lost lots of that because of my poor vision and I can't appreciate that scenery, big art like landscapes or portraits, I can't see the prime features. (P8)

Impact of impaired art perception

When asked "how does visual art make you feel?", participants had a range of emotional responses including sadness. Participants indicated that their ability to see art impacted their quality-of-life and expressed worry about the impact of future vision loss.

I'm thinking of how it will be when I can't see any more. As I said it's fine at the moment, but it's only a matter of time before it closes over that too. I worry about it. (P2)

Sometimes good, sometimes as I said, totally demoralised ... sometimes I can walk away feeling really good and it depends on what it is that I've seen and also how much frustration I've felt trying to see it and enjoy it. (P7)

Social aspects of art

Three participants with moderate vision loss described their enjoyment of experiencing art with others.

I have a friend who takes me sometimes, and she's good at interpreting things for me and we enjoy doing that together. (P5)

I enjoy taking the grandchildren to galleries ... so it's a reasonably large part of my life. And once more, it's something that I do with friends. Because my husband doesn't enjoy it at all, so it's not only art for art's sake, it's also the social part of it as well. (P7)

Participants also described how a lack of social support can impair their interactions with art and how their vision loss can present social challenges.

My husband can stand back there and my friends can say, or they'll read [the artwork description] to me, but it's a real, it's a drag to have someone else read it to you. (P6)

I have a friend who'd do this with me, but then you also get fed up with continually having to ask people to do stuff for you, or to help you do stuff. And look, I don't have a friend who minds. They happily drive me anywhere, we go out lots of places and all that, but every so often, I get the guilts about continually asking people for help. (P7)

Associations between participant variables

The Pearson correlations between the variables in [Table 1](#) were examined with mean substitution used to fill the two missing data points. Two significant relationships between variables were found: poorer binocular visual acuity was significantly correlated with poorer everyday visual functioning as measured on the NEI-VFQ-25 ($r(8) = 0.82, p = 0.013$), and poorer quality-of-life significantly correlated with higher psychological distress

Table 1. Individual participant details and vision and questionnaire results, ordered by visual acuity in both eyes.

Vision loss category		Mild (<6/6 to 6/18)				Moderate (<6/18 to 6/60)				Mean (SD)
Participant code	P1	P2	P3	P4	P5	P6	P7	P8		
Sex	M	F	F	F	F	F	F	M		
Age	76	78	91	91	84	70	73	84	81 (7.90)	
Diagnosis	Wet AMD	Advanced AMD	Wet AMD	AMD (Disciform scar)	Advanced AMD	Advanced Best's disease	End-stage AMD	Advanced glaucoma	-	
Binocular VA	6/4.8-2	6/6	6/9.5	6/15-2	6/30 + 1	6/38	6/48	6/48	-	
Peripheral Score	0.00	-1.13	0.00	-1.35	-0.08	-0.10	-2.38	-4.21	-1.16	
NEI-VFQ-25	76	83	63	52	50	64	40	34	58 (16.94)	
K6	8	-	22	9	9	7	13	16	12 (5.42)	
AQoL-8D	65	-	116	67	77	66	92	96	83 (19.34)	

Notes.

Abbreviations: M = male, F = female, AMD = age-related macular degeneration, VA = visual acuity. Peripheral scores are the mean of the per-region p-values transformed to logits from the Matrix N-30-5 tests. NEI-VFQ-25 = National Eye Institute Visual Functioning Questionnaire Interviewer Format plus Appendix where the composite score is the average of the vision-targeted subscale scores, excluding the general health rating question where a score of 100 is no impairment and lower scores are worsening impairment. K6 = Kessler Psychological Distress Scale (Kessler et al., 2002) using 6 items as a measure of psychological distress intended to assess general risk for serious mental illness where scores: 6-18 = no probable serious mental illness; and scores: 19-30 = probable serious mental illness. AQoL-8D = Assessment of Quality of Life (AQoL)-8D where higher scores correspond with worse quality of life. P2 did not complete the K6 or AQoL-8D.

as measured by the K6 ($r(8)=-0.98$, $p < 0.001$). The Standardised Effect-sizes for these interactions (Hedge's g) were >4 assuming an N of 7, given that mean substitution was used for 2 data points (Table 1). That provided a power of 0.997 for a p -value of 0.001 at $N = 7$. A stepwise linear model investigating the determinants of NEI-VFQ-25, using the other variables of Table 1, showed that NEI-VFQ-25 was determined by BVA and age ($F(5,8) = 33.7$, $p = 0.0013$, adjusted model $r^2 = 0.903$). In a leave-one-out cross-validation, 6 of the 8 models also chose BVA and Age. Similar analysis suggested that AQoL-8D was determined by K6 alone ($F(6,8) = 127$, $p < 0.0001$, adjusted model $r^2 = 0.947$). In the Leave-one-out cross-validation, 7 out of 8 models selected only AQoL-8D, and one fitted AQoL-8D and Age. Overall, as might be predicted from the large Effect-sizes, the stepwise models appeared to be quite robust in the face of different subject selections.

Discussion

This study comprehensively examined the experience of art for people with mild-to-moderate vision loss that builds on established theories of the art-viewing process (Arnheim, 2020; Koroscik, 1984). The results from the study, therefore, clarify the factors which underlie these processes: the experience of art is influenced primarily by personal preference, viewing conditions, the elements of art and the social context in which it is viewed, and this visual perception of art impacts how a person sees and experiences art. The interaction of these factors contributes to an individual's ability to engage with, appreciate and derive meaning from art.

Vision loss can be a barrier to an individual's ability to experience art. This study highlighted the interplay among personal preference and the ability to derive meaning and appreciation from art. That is, if a participant liked a particular artwork, they would be more likely to engage with it, derive meaning from it, and appreciate it. Conversely, if an artwork did not suit their personal preference, participants were less likely to engage with it. However, a person must be able to see an artwork to determine if they like it. Whilst most participants indicated that they could see the artworks, their ability to decide if they like it, derive meaning from it, and appreciate it was reduced by their vision loss. Surprisingly, participants with mild vision loss shared similar experiences to those with moderate vision loss, suggesting that these effects are more common than expected.

Concerning the art itself, participants required clear visual cues to perceive the art. They would often link what they saw to familiar objects and scenes. However, art does not always follow the rules of realism, and often blatantly challenges these rules. This forms an important question for the value of art itself, whether it is to merely represent what we know, or to provide us with a new perspective (Bimler et al., 2019). While the philosophical purpose of art is beyond the scope of this paper, this question emphasises a crucial consideration for art galleries in devising programs for those living with vision loss. The participants' self-reported difficulties seeing and therefore interpreting abstract art indicates that it may be useful to include artworks that are familiar to the viewer in access programs, so that people with vision loss can more easily "see" and therefore interpret the artwork. Alternatively, informing the viewer of what type of artwork it is, for example, a portrait, landscape, or abstract, may assist with the viewer's ability to comprehend it, derive meaning from it, and appreciate it. It should also be considered that whilst some people living with vision loss would like assistance to "see" art, people living with vision

loss also provide a unique experience of visual art which can give rise to new interpretations and meanings.

Viewing conditions are also very important for people living with vision loss and it is important to consider the size and complexity of the artwork. Given all participants in this study described visual phenomena, including blur and visual distortions, it is important to allow people living with vision loss to view art from multiple distances, to be able to see both fine details and the holistic view. Participants also described the challenges associated with lighting and the importance of lighting within the artwork itself. This is consistent with reports that improved lighting enhances visualisation for people with AMD (Mehta, 2015). Therefore, allowing people with vision loss to alter the lighting to their individual requirements would be beneficial.

In addition to the importance of being able to see art, participants described the importance of the social aspects of art. The therapeutic benefits of attending art galleries for improving mental health is established (Roberts et al., 2011), and participants in this study echoed the impact of social engagement within the gallery environment for their wellbeing. That is, people often enjoy experiencing art with others and this social aspect can be key to art's positive impression on the holistic experience. For people with mild-to-moderate vision loss, having someone else with them was sometimes necessary and often very beneficial. However, they may also experience feelings of guilt and frustration about their need to rely upon another person to help them view art. This correlation between vision loss and psychosocial challenges aligns with the literature on the impact of vision loss on visual function, social interactions, wellbeing, and overall quality-of-life (Mitchell & Bradley, 2006). However, our findings demonstrate the positive two-fold effect that visiting an art institution may have for people living with impaired vision: it can induce greater engagement with art and increased connections with the art-appreciating community. Therefore, it is important to consider the emotional and social benefits of engaging with art for individuals with mild-to-moderate vision loss.

The benefits of arts engagement and intervention programs on physical and psychological health is well-established. For example, a recent review by Jensen and Bonde (Jensen & Bonde, 2018) demonstrated art therapies improve psychological wellbeing and quality-of-life for people with and without mental health conditions, and healthcare professionals. Studies have examined the benefits of Arts on Prescription programs (which include creating visual art and visiting an art museum) in the United Kingdom and Denmark for people who are socially isolated and experiencing symptoms of anxiety, depression, and stress (Bungay & Clift, 2010; Jensen, 2019). Given people with vision loss are at risk of higher rates of depression and anxiety (Demmin & Silverstein, 2020), as well as poorer psychological wellbeing and increased risk of all-cause mortality (Burton et al., 2021), supporting people even at the early stages of vision loss to participate in art engagement and intervention programs will be beneficial for improving and maintaining psychological wellbeing and social connection.

Strengths and limitations

We originally planned to conduct this study in a gallery environment at the National Gallery of Australia in Canberra. However, due to the COVID-19 pandemic and associated lockdowns in Australia, the study design was altered significantly. Participants viewed art

images on a high-quality computer screen at the ANU clinical suite and two-dimensional artworks (including paintings and photographs) were selected to accommodate this medium. Therefore, the size (e.g. Léger's *Les Trapézistes* scaling 392.2 cm by 379.2 cm) and texture (e.g. the brush marks in Seurat's *Study for Le Bec du Hoc, Grandcamp*) could not be authentically represented. While this may not have replicated an authentic gallery experience for participants, this approach enabled more controlled viewing conditions, simulated alternative ways of viewing art (i.e. the increasing prevalence of viewing art online), reduced transport concerns and mobility issues for participants, and most importantly in our context, provided a COVID-safe environment for all involved.

The focus of this study was to specifically examine the impact of mild-to-moderate vision loss on the experience of visual art. Due to challenges with participant recruitment associated with the COVID-19 pandemic, the age of the participants was restricted to older adults (e.g. 70–91 years). Therefore, the experience of visual art across the lifespan could be further examined to determine whether factors other than visual acuity (e.g. other psychosocial factors) contribute to differences in the experience of visual art for younger adults with mild-to-moderate vision loss. Also, whilst the number of participants was small, saturation of themes was reached, and this exploratory study identified important insights into the experience of visual art for people living with mild-to-moderate vision loss and awareness of the emotional and social impacts when viewing visual art for this population.

Finally, participants were not familiar with the artworks used, which may have impacted how they engaged with the images. As our study identified, it is likely that participants may have engaged differently with the artworks if they were familiar, or if they had been provided cues as to the type of image they were viewing. Therefore, it is important to find the balance between familiarity and unfamiliarity of displayed artworks for people with vision loss and recognise that some participants may “see” and engage with art due to their memory of it, rather than their actual visual experience.

Recommendations

The findings from this study have provided strategies that could improve interactions with visual art for people living with mild-to-moderate vision loss, art institutions and for family and friends.

For people living with mild-to-moderate vision loss, we recommend the individual continues to engage with art, they communicate with others about what they see (including blur, distortions, poor colour perception etc.) and any barriers that reduce their ability to see art (e.g. viewing distance and lighting), and they select art they can engage with (e.g. that they prefer and find easiest to see).

For art institutions, we recommend they allow people with mild-to-moderate vision loss to view art from their preferred viewing distances (and if possible, reduce the minimum viewing distance to allow people with vision loss to move closer to the artworks), provide adjustable lighting, display art with elements that are easier to see (e.g. larger pieces of art with bright colours and well-contrasted forms), display art that caters for a range of personal preferences, provide information about the type of artwork to allow those with vision loss to better engage with it (e.g. large font and text that provides

information about visual cues and features within the artwork) and to promote art appreciation social groups for people with mild-to-moderate vision loss.

Family and friends can have an important role in assisting people with mild-to-moderate vision loss to experience art which includes seeing it, engaging with it, deriving meaning from it, and being able to appreciate art. This can be through understanding what the person with vision loss can see (e.g. if artworks appear blurred, distorted, or have poor colour and shape contrast), identifying the preferred viewing conditions and art preferences of the person living with vision loss, and providing information about the artwork (e.g. the artist, type of artwork and what the artwork is depicting) if requested.

Refer to Appendix C for the Fact Sheet – Strategies to improve the experience of visual art for people living with mild-to-moderate vision loss created for the purposes of distribution.

Conclusions

This study demonstrated there are many factors that affect the experience of visual art for people living with mild-to-moderate vision loss related to visual perception, viewing conditions, elements of art and personal art preferences. People with mild-to-moderate vision loss can experience difficulties seeing visual art and understanding a person's unique experience can help to develop strategies that enhance their experience of visual art and promote the emotional and social benefits of interacting with art.

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Appendix A

Interview Transcript

Introduction:

This questionnaire aims to help understand:

- (a) *the experiences of visual art for people living with mild to moderate vision loss, and*
- (b) *how impaired vision loss impacts interactions with art and quality of life for people living with mild to moderate vision loss.*

This interview is designed for people who experience some difficulty seeing visual art in everyday life. Every person's experience of vision loss is different. There are no right or wrong answers. The questions are about your personal experience of art at the moment.

Background information regarding visual experience (broad):

- (1) How long have you been living with vision loss?
- (2) What type of vision loss do you have?
- (3) How does your vision loss affect your everyday life?

Importance of and engagement with art:

- (4) How important is seeing art to you?

Not important Low importance Medium importance High importance

- (5) What do you like about the visual arts?
- (6) Have you always liked the visual arts?
- (7) How do you interact with art during your everyday life? (*prompt for galleries, art auctions and purchasing art, online, books, creating art*)
- (8) How often do you visit art galleries in a year?
- (9) Which galleries do you/did you frequent?
- (10) Why do/did you visit art galleries (particular exhibition, casually, social interaction, outing)?
- (11) If you aren't visiting art galleries, when was the last time you visited and why did you stop visiting?

Vision and art:

- (12) How close does your face have to be to an artwork to be able to see it most clearly?
- (13) When you look at art, does it look blurred to you?

Not at all Blurred in the distance but OK close up
Quite blurred even close up (1-2 m away) Blurred even close up (<1 m away)

- (14) Please describe what *blur* looks like to you:
- (15) When you look at art, does it look distorted to you?

'Distorted' includes the art twisting or changing shape or parts of the art moving or disappearing
Never Sometimes Often Almost always

- (16) Please describe what *distorted* looks like to you:
- (17) When you look at art, do you see a 'black blob' or dark spots in your central vision?

Never Sometimes Often Almost always

- (18) When you look at art, do you see dark spots in your peripheral vision?

Never Sometimes Often Almost always

- (19) Please describe how these *black blobs/dark spots* look like to you:
- (20) When you look at art, do you see other visual experiences (e.g., flecks, hallucinations etc.)?
- (21) Please describe how these types of *visual experiences* look like to you:
- (22) Does your ability to see visual art vary with different lighting conditions?

No, it's always the same Yes, different light makes me see visual art better or worse

- (23) If yes, what lighting works best for you?

Low light Bright light Medium light It changes at different times

- (24) Does your ability to see visual art vary with other factors? e.g., time of day, feeling tired

No Yes

- (25) If yes, please describe this:

- (26) Overall, please describe how visual arts looks like to you:

Elements of Art:

- (27) What stands out to you most when you view an artwork?
- (28) Out of these elements of art (line, shape, form, space, colour, texture), what stands out to you the most?

Viewing art images:

I am now going to show you six images and I would like you to describe what you can see and then I will ask you about a specific element in the image

Line

- (29) Please describe what you can see in this image
- (30) Do you have any problems seeing lines in this image?
- (31) How do lines appear to you in this image (clear, fuzzy, blurry)?

Shape

- (32) Please describe what you can see in this image
- (33) Do you have any problems seeing shapes in this image?
- (34) How do these shapes appear to you (distorted, enlarged)?

Form

- (35) Please describe what you can see in this image
- (36) Do you have any problems seeing form in this image?
- (37) How do these forms appear to you (3D, lacking form, wonky)?

Space

- (38) Please describe what you can see in this image
- (39) Do you have any problems seeing space in this image?
- (40) How does space appear to you (not visible, cramped, bleak)?

Colour

- (41) Please describe what you can see in this image
- (42) Do you have any problems seeing colour in this image?
- (43) How does colour appear to you (dull, bright, tinged)?

Texture

- (44) Please describe what you can see in this image
- (45) Do you have any problems seeing texture in this image?
- (46) How does texture appear to you (smooth, rough, wet)?
- (47) Do you have any comments about these images?

Experience of Art:

- (48) How does seeing visual art make you feel?
- (49) How does your vision loss impact the way you see art?
- (50) Does your ability to see art impact your quality of life? (please describe)
- (51) Do you think about art after you have viewed it?
- (52) Are there any barriers for you to see art?
- (53) Are there any barriers to how art makes you feel?

Future engagement:

- (54) Are you likely to continue seeing visual art in the future?
- (55) Are there any art programs you think that could support your experience?
- (56) Are there any changes that can be made to the art programs available to support your experience?
- (57) Is there anything else about your experience of art of this interview that you would like to mention?

Thank you for your participation in this interview.

Appendix B

Additional participant quotes

Additional quotes from the thematic analyses.

Visual perception of art

My colour perception is not as good as it was, and if I'm looking at something small, I really need to be up very, very close, and if I'm not, I just have a general feeling of colour. And not very bright colour. Like a water wash. It depends on the size, and not whether it's blue or pink or whatever, but how vivid the colour is. (P7)

Viewing conditions (distance and lighting)

You don't know how many times the alarms have gone off because I've wanted to get close enough to be able to see who it was and what they were saying about the piece on the little thing. It might not be for you, but they certainly are for me . . . And usually what I do is I like to go around with my telescope in my hand and my magnifying glass, making it obvious that I've got a vision problem, but it just makes people aware. I've got my glasses so it looks like I'm somebody who's got impaired vision and then if I stick my head real close, I get a little bit of leeway until I actually make the alarms go off. That's the issue. (P6)

Sometimes I really get annoyed [if the lighting conditions are not right] . . . the curator is not crash hot. (P5)

Elements of art

Shape and colour . . . not textures . . . space probably. (P2)

Only whether I like it or not . . . then colour, I always go for colour and number two would be texture. (P5)

I think it's definitely the way something looks like from a distance and the eye will be attracted by the colour and the strata of colour, that's what it is. (P6)

Good contrast helps . . . possibly form, but the form would need to be coloured. There's got to be some substance to the form. I think the one I would say the least is texture. (P7)

Colour, bright colours, and shape. (P8)

Personal preference

Not my cup of tea. (P1)

I am not too keen on this one, a bit too surreal, and not, I think it is ugly, too distorted. (P3)

It's a bit messy. I don't really like the yellow again but it does contrast against the other . . . I don't think I want her on my wall. [To another image] I like the Monet type impressionist style. As it came on, I liked the feeling of it. The colours go together . . . I'd have that on my wall. (P5)

Deriving meaning

I see that you've got two people, one hanging upside down on the trapeze and one hanging sideways, and a little security net at the bottom, and a ladder to climb up on, on the side, and little birds. That probably means they are free as birds. (P2)

I am ambivalent or indifferent, I neither dislike it, I find it not interesting, and not significant, I wonder what it really is meant to represent. (P3)

It's interesting. I feel like I had a lot to say about the other one, but not much to say about this. Everything I want to say about this seems to be saying something psychological, but when I look it, I'd say, not really. If they're trying to say something else, I'm not sure what they're trying to say here. Particularly the birds, the birds don't fit with everything else ... See, I'm trying to interpret something out of it, but nah. (P6)

I have no idea. The front is just a blur, except that I can see two different colours in the front bit. But the back bit, is just a murky, it could be water. But if that's water, I have no idea what that is in the front. Yes, I can see the texture. It's kind of like everything is scalloped. There's no definition to it, but if I could, I know I wouldn't be allowed to, but I'd touch it, because that just means nothing to me. (P7)

No, I can't see that. I don't really know, it doesn't look like anything. (P8)

Appreciation of art

Certainly, there is a place in society for it ... It's part of life, and we need to accept and appreciate that. (P1)

At the moment I can't appreciate it as I should. (P4)

So it is still part of that same appreciation of having done a certain way, just because it looks beautiful ... it's an appreciation of, so I think I like the whole feel of art. (P6)

Impact of impaired art perception

I think it enriches my life, but then again I am limited in what I like to see. (P1)

Not, not really I suppose. Like, I can't say it's really affected unduly. You know I enjoy it when I see it, but I don't have to live with it. (P4)

If I can't see it, I can't feel it. I think it would be regret if I couldn't. (P5)

It makes me feel sad ... I can't make out what it is ... I can't appreciate the beauty of it though ... it just confirms that I've lost the ability to appreciate artwork. (P8)

Social aspects of art

We would go [to the National Gallery] because I have friends and we would go down there and have a wander. (P6)

Appendix C

Fact Sheet

Strategies to improve the experience of visual art for people living with mild-to-moderate vision loss

Visual art can be enriching for many and can improve wellbeing and quality-of-life. However, the ability to see and experience art can be negatively impacted in people with mild-to-moderate vision loss. Here are some strategies for improving interactions with art for people living with mild-to-moderate vision loss.

For people with mild-to-moderate vision loss:

- Continue to engage with art on your own and with others
- Communicate your experiences of art (e.g., by explaining what you see including if you are experiencing blur, distortions, poor colour perception etc.) and any barriers that reduce your ability to see and appreciate art (e.g., viewing distance and lighting)
- Select art that you can engage with (e.g., that you prefer and find easiest to see)

For art institutions:

- Allow people with mild-to-moderate vision loss to view art from their preferred viewing distances and if possible, to move closer to the artwork than the standard viewing distance
- Provide adjustable lighting options
- Display art with elements that are easier to see, including bright colours and well-contrasted forms
- Display art that caters for a range of personal preferences
- Use large text fonts that include information about the type of artwork, visual cues and features within the artwork to enhance art engagement for people with mild-to-moderate vision loss
- Promote art appreciation social groups for people with mild-to-moderate vision loss

For family and friends of people with mild-to-moderate vision loss:

- People with mild-to-moderate vision loss can experience difficulties seeing art which can impact their ability to engage with it, derive meaning from it and appreciate it
- Ask if the person with vision loss would like to attend art institutions with others who appreciate art
- To understand the experience of art perception for a person with vision loss, ask them to explain what they see e.g., if artworks appear blurred, distorted, or have poor colour and shape contrast
- Identify the person's preferred viewing conditions e.g., distance and lighting conditions
- Identify the person's art preferences e.g., abstract, landscape, portrait
- Ask if the person with vision loss would like you to provide information about the artwork (e.g., the artist, type of artwork and what the artwork is depicting)