Associations between adult attachment and vision-related quality of life in visually impaired individuals

ABSTRACT

PURPOSE: An attachment theory framework approach may allow insight as to how social and psychosocial factors interact to impact vision-related quality of life (QoL). In this pilot study, we investigated the potential associations between adult attachment style and visual function QoL of visually impaired individuals.

METHODS: We recruited 38 visually impaired individuals (15 females, 23 males; 51.8±16.0 years). Visual function measures included distance and near visual acuity (VA) and contrast sensitivity. All participants completed: the 25-item National Eye Institute Visual Functioning Questionnaire-25 (NEI-VFQ 25) and the Experiences in Close Relationships–Relationships Structures questionnaire.

RESULTS: Presenting conditions included inherited retinal dystrophy (n=10), nystagmus (n=9), glaucoma (n=7) and other eye conditions (n=12). There was a statistically significant negative correlation between the NEI-VFQ-25 composite score (45.5±14.7) and attachment-related anxiety (r=-0.352, p=0.033). The latter correlation still held when controlling for participants' level of vision (r=-0.352, p=0.035). Despite the range of conditions and wide age range, these were not significantly correlated with any variable of interest in the current study.

CONCLUSION: Attachment-related anxiety ought to be taken into account when managing a visually impaired individual. Attachment-based approaches could be used to improve access to support services for visually impaired individuals, as well as self-management of their condition.

Keywords: Adult attachment; vision related quality of life; visual impairment; psychosocial factors.

INTRODUCTION

Visual impairment is a common global problem affecting 441 million people worldwide (Bourne et al., 2017). Many visually impaired individuals report a reduced quality of life (QoL), including a loss of independence, reduction in emotional well-being and social relationships (Crews et al., 2016; Kempen et al 2012). It has been found that vision-specific emotional well-being declines with increased levels of bilateral visual impairment (Fenwick et al., 2017). Although levels of vision loss can predict difficulties that a visually impaired individual may face, this is not always the case e.g. Trillo et al (2012) found that QoL of visually impaired individuals was more likely to be influenced by physiological factors rather than level of vision loss.

Attachment theory is one of the major frameworks for the study of close, social bonds, and permits empirical examination of patterns of interpersonal approach and avoidance and accessing support (Bifulco, 2002). It can thus be used to understand various health parameters including general QoL (Meredith et al., 2016), adherence to treatment (Ciechanowski et al., 2001) and self-reported health measures (McWilliams et al., 2010; Ahrens et al., 2012). A negative association between adult attachment style and these health-related parameters has been reported (Ahrens et al., 2012; Sockalingamet al., 2011). Although it has been indicated that a loss of vision has a negative impact on daily livings and feelings of anxiety (Kempen et al., 2012), the associations between adult attachment style on visual function QoL of visually impaired individuals has not yet been examined.

METHODS

Participants and procedure

Informed consent was obtained from all participants. All data was collected at City, University of London, UK by a qualified optometrist (SA). Volunteers were recruited from the University's visual impairment clinic and local charities (e.g. Macular Society). Selection of potential participants was based on a confirmed diagnosis of their eye condition and level of vision consistent with eligibility for registration in UK as sight impaired (Bourne et al., 2017).

Each participant undertook several vision tests using their habitual spectacle correction. Binocular distance visual acuity (VA) was recorded in log of the minimum angle of resolution (logMAR) using the Early Treatment Diabetic Retinopathy Study (ETDRS) chart (Ferris et al., 1982). This consists of rows of letters of decreasing sizes whereby the smallest row of letters that can be read at a set distance is recorded. A cut-off threshold value of logMAR ≤ 1.30 or > 1.30 was chosen for partial correlation statistical analysis, consistent with level of VA (with full visual field) that is considered as severe sight impairment (Bourne et al., 2017).

Binocular near VA was also measured in logMAR using the Bailey-Lovie Near Reading Card (Bailey and Lovie-Kitchin, 2013). This consists of rows of unrelated words, with the smallest row of words read recorded. Binocular Contrast Sensitivity was measured in Log Units using the Pelli-Robson Chart (Pelli and Robson, 1988). This consists of rows of letters of decreasing contrast (relative to chart background). The lowest contrast read is recorded.

Self-report measures

Each participant completed the following questionnaires. To maintain consistency, SA

read questions and response options to participants and recorded their answers accordingly. A standard script was followed to eliminate possibility of skewed results due to investigator interference. The order of questionnaire administration was randomised to minimise fatigue bias.

The 25-item National Eye Institute Visual Functioning Questionnaire-25 (NEI-VFQ 25) (Mangione et al., 2001)

The NEI-VFQ 25 measures the impact of sight loss on QoL. This questionnaire has a high test-rest reliability and validity (Finger et all., 2008). The measure contains 11 vision specific sub scales: global vision rating, difficulty with near vision activities, difficulty with distance vision activities, limitations in social functioning due to vision, role limitations due to vision, dependency on others due to vision, mental health symptoms due to vision, driving difficulties, limitations with peripheral and colour vision and ocular pain. Questions are either rated on a 6-point scale (e.g. 'no difficulty' to 'stopped doing this because of eyesight') or a 5-point scale (e.g. 'agree all the time' to 'agree none of the time'). Full details of the questionnaire are available on the RAND website (https://www.rand.org/health-care/surveys_tools/vfq.html). The subscales are scored from 0 to 100. The average of the 11 vision-specific subscales provides a composite score.

The Experiences in Close Relationships-Relationships Structures (ECR-RS) (Fraley et al., 2011)

The ECR-RS contains 9 items to assess differences along two dimensions of attachment: 6 items for attachment-related anxiety (how secure or insecure an individual is about the availability and responsiveness of others) and 3 for attachment-related avoidance (how comfortable an individual is being close to and depending on others).

Each item employs a 5-point response Likert scale (1=strongly disagree, to 5=strongly agree). Higher scores reflect higher levels of each attachment dimension. Reliability and repeatability of this measure has been demonstrated (Wei et al., 2007). In the present study, reliability for the anxiety scale was good (r=0.73), but as reliability for avoidance was below acceptable standards (r=0.31), attachment avoidance was subsequently not used for data analysis.

Sample size calculation

A power calculation using G*Power [18] based on linear multiple regression calculation with 2 predictors based on attachment style with alpha =0.05, effect size =0.40 consistent with a previous study (Morris et al., 2009), power =0.95 indicated a sample size of 35 would be required.

Statistical analysis

Data analysis was conducted using SPSS software (version 24) (IBM SPSS Statistics 24, 2017). Normality tests were carried out to confirm subsequent use of parametric tests. Pearson's correlation coefficients were used to examine relationships between clinical indices of visual function QoL and attachment-related anxiety. To predict visual function QoL, a linear regression (hMLR) was carried out. The enter method of variable entry was used, and binocular distance VA and attachment–related anxiety were entered as predictor variables.

RESULTS

The present sample included 38 individuals (15 females, 23 males) aged 51.8±16.0 years. The most common presenting ocular conditions were: inherited retinal dystrophy (n=10), nystagmus (n=9) and glaucoma (n=7) and other conditions (n=12) that included

age-related macular degeneration (n=2) and diabetic retinopathy (n=1). Descriptive statistics are shown in Table 1.

Lower overall self-reported vision function QoL was associated with a worse objective measure of distance vision: the NEI VFQ-25 composite score was negatively correlated with participants' binocular distance VA (although this did not reach statistical significance, r=-0.308, p=0.125). There was also statistically significant positive correlation between contrast sensitivity and the NEI VFQ-25 composite score (r=0.741, p<0.0005) and a positive correlation between binocular near VA and the NEI VFQ-25 composite score (r=0.514, p<0.01).

The NEI VFQ-25 composite score was significantly, negatively correlated with attachment-related anxiety, whereby lower overall visual-function QoL was associated with higher levels of attachment-related anxiety (r=-0.352, p=0.033). The correlation still held when controlling for participants' objective level of binocular distance VA using the cut-off threshold value of logMAR ≤1.30 or >1.30 (r=-0.352, p=0.035). Of note, despite a range of conditions and ages of the participants, neither of these factors was significantly correlated with any variable of interest in the current study and is therefore not reported.

Given that both attachment-related anxiety and the objective measure of participants' binocular distance VA were associated with lower overall self-reported visual function, both variables were entered as predictor variables into a linear multiple regression model predicting the NEI-VFQ 25 composite measure of visual function QoL; a statistically significant relationship emerged ($F_{(2, 34)} = 8.425$, $p = 0.001$; Adjusted $R^2 = .292$) and participants' binocular distance VA (B = -13.647; $\beta = -.458$; $p = .003$) and attachment-related anxiety (B = --3.555; $\beta = -.398$; $p = .008$) were

identified as independent predictors, with relationships in the same direction as mentioned afore.

DISCUSSION

To our best knowledge this is the first study to investigate the association between adult attachment style and visual function QoL. We report that in visually impaired individuals, higher attachment-related anxiety predicted poorer visual function QoL. This was true regardless of the level of visual impairment. We also found that lower overall self-reported visual function QoL was associated with worse binocular distance VA, supporting previous findings (Lamoureux et al., 2009; Deramo et al., 2003).

These findings imply that people with higher levels of attachment-related anxiety are more likely to perceive that their QoL is being compromised due to their visual function, which echoes previous work showing that poorer health-related parameters are negatively associated with adult attachment style (Ahrens et al., 2012; Sockalingamet al., 2011). One interpretation is that those with higher levels of attachment-related anxiety have greater worries about abandonment and separation, which, behaviourally, manifests in greater dependency/clinginess. These individuals may therefore have reduced coping strategies (Sturrock et al., 2015; Maunder and Hunter, 2001), as well as a tendency to perceive experiences in a more negative manner (Brennan et al., 1998).

Of note, participants in this trial may not be typical of the low vision population as the majority of people attending a low vision clinic would be expected to have age-related macular degeneration, or diabetic retinopathy or glaucoma, and would likely be older (>75 years of age). Our participants suffered from a range of causes of visual impairment, including congenital (e.g. inherited retinal dystrophy) and acquired

conditions (e.g. glaucoma). The effect of acquired versus congenital visual impairment was not assessed in the present study but may play a role (Adenzato et al., 2006).

CONCLUSION

We have shown that higher levels of attachment-related anxiety, even when taking into account the severity of visual impairment, predict a lower level of visual function QoL. Attachment-related anxiety may be an important factor to consider when managing a visually impaired individual, with implications for considering improved access to support services for visually impaired individuals, as well as self-management of their condition.

Disclosure statement

The authors declare that they have no conflicts of interest.

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Table 1. *Descriptive statistics for clinical indices of visual function and self-reported visual function QoL and attachment anxiety*

Parameter	Mean (SD)
Visual function	
Binocular Distance VA (logMAR)	0.96 (0.39)
Binocular Near VA (logMAR)	0.53 (0.44)
Contrast Sensitivity (Log Contrast)	0.91 (0.39)
NEI VFQ-25 Score	
VFQ Composite	45.49 (14.65)
Ocular pain	*71.07 (19.59)*
Near activities	*34.88 (19.55)*
Distance activities	*37.62 (17.18)*
Social function	*41.18 (20.99)*
Mental health	*45.00 (17.73)*
Role difficulties	*48.21 (20.40)*
Dependency	*51.43 (23.87)*
Colour vision	*44.12 (29.55)*
Peripheral vision	*38.57 (23.75)*
ECR-RS	
ECR attachment-related anxiety	3.58 (1.67)