OPHTHALMOLOGICAL DISORDERS BASED ON INTERNATIONAL CLASSIFICATION OF DISEASES -10 CRITERIA AND ITS ASSOCIATION WITH DEPRESSION AND ANXIETY



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**ABSTRACT**

# OBIECTIVE

To assess the frequency ofanxiety and depression in patients withophthalmologicaldisorders based 011 ICD-l O criteria.

**STUDY DESIGN**

Cross-seaional Study

**PLACE ANO DURATION OF THE STUDY**

The study was carried out at Department of Ophthalmology, Jinnah Postgraduate Medical Center, in collaboration with Department of Psychiatry and Behavioral Sciences, from September to November 2015,

**SU Bl ECTS A ND METHODS**

160 randomly selected patients ufferlng from different visual

disorders participated in the study. Informed consent was

taken and a 5emi-ruuctured proforma was used to fill the demographic variables as well as the baslc: complains or

ophthalmologtcal disorders, and were placed In different diagnostic categories of ophthalmologkal disorders as per ICD-10. HOlpital anxiety and depression rating scale w.is applied toassess the anxiety and depression and severitywas assessed on Hamilton rating scale for Anxiety and Hamilton rating scale for depression respectively.

RESULTS

Ou1 of 160 randomly selected patients 63% were male and

37% female. The mean age ±SD was 44.1±15.16. Our study revealed that 19.4% had depression and anxiety disorder.

Although there was no significant relation between specific *eye* disease and psychiatric aliment; however symptoms like deaeased vision and floaters had significant relation with arudetyand depression.

**CONCLUSION**

Decreased vision had significant effect on anxiety and depression irrespective of diagnostic entity **or** Ophthalmology according to ICD-1 O. Fema le **gender,**

Increasing age, divorced, widowed/ separated, Illiteracy and loss of job were found to have significant relation wlth depressionand anxiety disorder.

**KEYWORDS**

Impaired Vision,Eye,Psychiatric disorders

**INTRODUCTION**

Eye is one of the most complex organs of our body and its proper functioning is essential for carrying out daily activities. According to world health organization (WHO) approximately 285 million people are visually compromised globally, out of these, 246 million have d iminished vision.Anestimate of about90% of worlo'svlsually impaired population belong to low socio-economic dass.1 In the light of this, eye diseases have become a cause of great concern associated with decreased functioning and psychiatric symptoms of depression and anxiety.1

lntematlonalClassification of diseases in 1ts VII chapter has mentioned diseases of eye and adnexa with the letter H, and has been divided into

11 categories whereas there are approximately 45 different eye symptoms to present with as per American academy of ophthalmology,s-<

A.lmost all eye disorders result in visual impairment, the most feared d lsabilhy; assense ofsight Is considered most important among sensory Input and losing vision has been considered equal to losing a limb.5 It has long been researched that with increasing age, prevalence of visual Impairment increases.'' According to a report, more than 4 million A.merican, with the age of ;,,. 40 years are either blind or visually Impaired.•

With such wide range of problems, from sensory lmpalrmentto flnancial burdens, irrespective of age, eye diseases have adverse effects on the quality of life of the pati , resulting in psychological problems. Depression is a known debmtating factor and is responsible for worsening thequality oflife of the patients. It Isthefourth major cause of d lsablllty globally. 1' Associated depression a1rd other psychological symptorm can worsen the prognosis of any physical lllness.'1·11 With respect to visual Impairment, both anxiety and depression contribute significantly in det minlng theclinical outcome aswell as the prognosis of the patients,' " Thus, it fs Imperative to evaluate a correlation between different visua I disordersand depression or anxiety.

### SU8JfCTSAND MHHODS

**Participant!**

160 randomly selected patients based on previous researchl 6, suffering from different ophthalmologlcal disorders were enrolled from out­ patient clinic, with. 95% confidence interval and 5% absolute precision.16 Sample size was calculated on least value (12%) using computer program Open Epi version 2. Patients of both genders



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reporting to out-patient clinic at Eye Department with various symptoms and were at least 18 years old were Included In the study. Patients already diagnosed with any psychiatric Illness, or cases with acute presentation, ophthalmologlcal emergencies, and post operative cases were excluded.

### Instruments

HospJtal Anxiety and Depression rating scale (HADS) was used to assess anxiety and depression. HADS consists of 14 items with a **4-** point scale (0-3), it is scored as O - 7 for normal, 8 - 10 for borderline abnormal and 11-21 forca.ses.

Hamilton Depression Rating Scale (HAM-D), fi 17 itemscale was used to assess the severity of depression. Eight items are scored on a S pointscale(0-4), where as nineitems are scored on 3 pointscale(0- 2).Severltywas scored as mild =8-13,moderate= T4-18,severe = 19-22,andverysevere;;,,23.

Hamilton Anxiety Rating Scale (HAM-A), 14 Items scale was used to assenthe severity of anxlety.EachltemIs scored on a 5 point scale(0- 4). Severity was scored as mild = 14- 17, moderate= 18 - 24, and severe=25-30.

All patients meeting the criteria; underwent a comprehensive eye

examination by the consultant ophthalmologist. As per their reporting symptoms they were categorized wlthll'l different eye disorders according to International Classification ofDlseases version l O (ICD-1Q), which was recorded on semi structured proforma, along

withtheir socio-demographic details.

### Procedure

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**Table** l

FactorslvariRlilei ocinfeJ with Psyehiatnc Ji.cam on Cbi qllllre (n• t 60)

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| --- | --- | --- | --- | --- | --- |
|  | | No.of 'Subject | Psvcbiatric  Disease | | **p** |
| Gender |  |  | "No | '¾ | 0.021 |
| Mole | IOI | 14 | 13.9 |
| P,malr | *S9* | 17 | .211.B |
| Age iii *ycan* | Under 30 | 3K | I | 2.6 | 0.001 |
| 30-49 | 47 | *6* | 12.8 |
| 50 **1111<1** abo-ve | 75 | 24 | n.o |
| Mari1al S1atus | Single | 61 | *s* | 8.2 | 0.001 |
| Mamed | 73 | 14 | 19..2 |
| Widow | 13 | 6 | 46.2 |
| Divorced I ••pa.rated | 13 | 6 | 46.l |
| Edm."BhOD | None | 59 | *ft* | 27.J | 0.018 |
| Primary | 29 |  | 20.7 |
| Seo:indary | IR | *s* | lH |
| Matrlc | 19 | 3 | IS.R |
| Inter&: above | 3, | I | 2.9 |
| Occupahon | Srude,it | 16 | 0 | 0 | 0.001 |
| Govt. / Pvt. Job | *SU* | 2 | 4.1) |
| Self i:mployed / BusiDCS5 | 20 | 3 | 15.0 |
| Jobloss | 17 | 7 | 41.2 |
| Retir,;d | 28 | 9 | 32.1 |
| Mother T011guc | Urdu | 45 | 8 | 17.8 | .752 |
| Sindhi | 3 | 7 | 200 |
| Panjobi | 21 | 6 | 28.6 |
| Bakiucbi | IS | 4 | 26. |
| Pa.sbto | 14 | 2 | 14.3 |
| OllJer | 30 | 4 | 13.3 |
| Rc,1den1 | Wiihin !Cam< h1 | lln | zn | 17.Z | 0.268 |
| Ouusidc Karachi | 44 | 11 | :!5 |

This cross-sectlot'lal, observational study was c.irried ou1 at Department of Ophthalmology, Jinnah Postgraduate Medical Center, In collaboration with Department of PsychiatTy and Behavioral Sciences, from 5eptember to November 2015. Ethical

approval was taken from the institutional *review* board of the

institute. It was a collaborative study between Department of Ophthalmology (Eye ward) and Department of Psychiatry and Behavioral Sciences of JPMC. Writteo consent was taken from all participants, HADS was applied to all the patients of the study meeting the inclusion criteria at'ld later HAM-A or HAM-D was

Our study revealed 19.4% of the

sample had either anxiety or

administered to those who came positive on HADS. All three scales

*were* administered by consultant psychiatrist. The data was entered and al'lalyzed through SPSS version 21. Chi square test was applied for association and **P**value < 0.0*5* was takel'l**as** slgn ificant.

## RE ULTS

Out of 160 randomly selected patients, majority i.e. 63% was male

and the rest 37% female. Mean age ± SD of the patients was 44.1±15.16 with the age range of 18 to 60 years, majority of them

were within the *age* bracket of 50 years and above, as mentioned In table1. Major share of the sample patients were local reside11ts (from Karachi 72.5% and 27*5%* were from outside Karachi). More thanhalf of the patients had their education till seco11dary level (Table 1). 5.ample of the patient In terms of their language was diverse; however,most of them were marriedand were employed (Table l).

depression, with 11.8 % and 63% having mild depression and

anxiety respectiveiy (Tabte 2 ). The mest striking finding of the study that came out incidentally was the significant association (Le.p-v.ilue

<0.SJ between symptoms of eye diseases and psychiatric co­

morbidity (Table 4). However, the association between eye diseases as per ICD-10 and anxiety and/or depression was not significant. **(Table4)**

**Table2**

s venty cf Depre sio11 am.I A11xiety

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Depression sc,·m** | | | | **Amlely Se.eril)•** | |
| **Mild** | | **Modenm:** | | **Mild** | |
| **Frequeocy** | Pemmmge | Fn:quency | Percentage | **Freijue11ey** | Percentes• |
| 19 | 11.8 | 02 | I.] | JO | tl,3 |



**Table 3**

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I t *r* ri

When association of anxiety and depression with different variables

Frequency or Eye symptom . Diseases (lCD-10) and Psyclli"trie disea.se,&

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|  |  |  |
| --- | --- | --- |
|  | o"'  i | ***1o<''*** |
| **E\IESYMl'l'OMS** |  |  |
| Decrease , ision / Floa!cn | 78 | 48.8 |
| Routine/ follow-up (post surger)', laser) | *45* | 28.1 |
| ReJnm. Pain. swelling | 19 | 11.9 |
| lwhin11, foreisn body Jll>JIS!llioo | 18 | 11.3 |
| EVE DISEASES WITH ICD-10 |  |  |
| HOO-H06 Disorders of eyelid, lacrimal &ysu=mand oroi1 | 27 | 16.') |
| HI0-H lJ Disonlcr.1 of tonpmc!i.• | II | 6.9 |
| Hl$-H22 Ditorde,.. of1tlent, romea, irii and cilllll}' body | 10 | 6.3 |
| H2$-H28 Disorders of l s | 27 | 16.9 |
| H30-H36 Disonler.. ofChuruid and retina | 47 | 29.4 |
| H40-H42 Glaucoma | lO | 6.3 |
| H4J-H45 DisordeB ofVlll'eOIIS body and globe | 6 | 3.8 |
| H46-H48 Disorders *11(* optic nerve Md vi1ual pethway, | I | 0.6 |
| H49-HS2 Dillonler.i of oculnr muscles. bi ocular  **movicmcut1 M.,:;;ommod1liWL** | IS | **9.4** |
| H5J•H54 Vi,uill dislwt,l!Jlc"" and blindn•ss | Ii | 3.8 |
| **PSYC'HIATRIC DISEASES** | 31 | 19.4 |
| Dcpm,sio11 | 21 | 13,1 |
| Anxicly | 10 | 6.3 |

**Table 4**

Associa110n of eye symptoms and disease wilh Psyehiatric dis.;ase oo chi qua

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **[y0-S!mplom,,** | **Np.of**  Subjocl | **l'll)cbialric** | | **p** |
|  |  | No. .., | | 0.U43 |
| **D 11se vJitOll** | ?8 | 21 | 26.9 |
| Ro111inc / fol[Qw-up (pool ••'l!"f)', 1.. 0,) | 45 | 7 | 15,1\ |
| R.edn,,s,i, Pain. swel!inil, ilcl!i"ll. foreign  bod} sensation | 37 | *3* | 8.1 |
| Hll()-H06 Disorders ohyclid. Iacrimtl   * )'Siem o.o.d oibil |  |  |  |  |
| Hl0..Hl3 Diflorder.1 ofoon)uncth·a | II | l | 91 |
| Hl5-H22 Dil!otdcrs of,clem, Cl>l11Cll,  iris and ,;iiia,y bod}' | 10 | I | 10.0 |
| HH-Hl8 Disorders orlcm | 27 | l!. | 29.6 |
| H30-HJ6 Disonlen, of **Choroid** ruid retmo | 47 | ll | 23.4 |
| H-t0-H42 Glaucoma | 10 | I | *w.n* |
| H43-H4S Disordor.. or vilreoao body **encl**  globe | **6** | 0 | 0 |
| H46-H4 Disordcrn of c,plio**nerve** ond vi,u.,J pathway1 | **t** | u | 0 |
| H49-H5 Disortkn> of oeular m11Scle..  binocnlar movemert  **actornm.odation** | 15 | 4 | 26.7 |
| H53-l-l54 Vi.ual distwbarice1 a,,d bli ridnes., | 6 | 0 | 0 |

**Dl&<ast**

wa-s observed, gender, **age,** marital status, education and occupation came out as significant, I.e. with p-value <0.05. However, language and placeof residence were non significant.

## DISCUS ION

We found that 19.4% of our subjects aged 18 or more years, with different ophthalmologlcal disorders were either depresse-d or had anxiety. Our data revealed a significant association between sign and symptoms related to *eye* diseases and psychiatric !llness, with a p­ valueof <0.05. However, the association between ophthalmological disorders as per IC0.10 and psychiatric co•morbldlty was not significant. The present study flndings demonstrating the co­ existence of ,ymptoms of eye pathology and associated anxiety and/or depression Is well In line with published llterature.18-20,23

When association of anxiety and depression with different variables was observed, gender, age, marital status, education and occupation weresignificantly associated with p-value <0.05. This finding isin line with Evans et al.'s study, who in 2007 reported a higher occurrence of depression in patients with impaired visual acuity than those with no visual defects with 13.5% (95% Cl, 11.5%--15.4%;**p<** 0.001) of the participants with impaired visual acuity being depressed, that is, they scored higher on the Geriatric Depression Scale (GDS),18 Likewise, Carabellese et al. also revealed an association between impaired vision and increased risk of depression and/or anxiety in**a** klrge•sc.ale study of adults living in the communlty.18 However, many of these studies attributed the Increased risk of depression to reduced capac:lty to carry out daily acth/ities. People with diminished vision are more likely to experiel'lCe difficulties with functioning, which in turn leads to amdety and depression. In a study, It was reported that when Activities of Daily Living were controlled, it ,lgnlficantly reduced the ilSSociation between lmpair-ed ll'ision and depression levels in the subjects.18, 20 A possible expla-nation Is thatfunctional Impairment acted a an attributing factor In Increasing the rfsk of depressionand anxiety ln these patients with impaired vision,

Our study failed to Hnd evidence of an association of any specific eye pathology with Increased levels of depression and anxiety. In contrast. M. LI et al. in 2011 reveilled that patients with d!agno5ed cases of Dry Eye Syndrome had higher levels of an)(iousness and depression ascomp.1red I,:,thecontrol group with P-va Iue< 0.001 for both anxiety ,ind depre!;sion.21 His results are in agreement with Erb et al.'situdy, which also found that patients with diagnosed car.es of primary keratoconjunctlvitis(pKCS) were more depressed than those wrthout pKCS.22 The possible explanation for the contradictory results is that the above mentioned studies focused on a single *eye* disease whereas, our study dld not target any specific eye-associated pathology.

The present study is the first study, to our understanding, that has explored the association between depression and anxiety with Impaired vision In an out-patient public sector h05pltal on the basis of different diagnostic categories of ophthalmological disorders as per ICD-10 diagnostic crlterta. Although there wasn't any significant relation between spedfl.c ophthalmological diagnosis as per ICD-10 and psychiatric co-morbidity; however, symptoms llke decre;i d vision and floatefs had significan1 relation with the an Jety and depression. In accordance to our study, Augustin et al. in 2007



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reponed increased prevalence of severe depression of 7.6% in patients with loss of visual acuity with age.2 However, In contrast to our study, thls study also showed that anxiety was unrelated to the loss of visual acuity. Furthermore, higher scores of depression was strongly associated with the severity of the visual impairment (P<0.006), but nottotal anxiety scores. A possible explanation for this difference is that Augustin et al. findings are based on .subjects with already diagnosed ophthalmological diseases with a mean of 2.3 years' disease duration while the present study ls based on subjects with untreated and undiagnosed ophthalmological problems who reported to out-patient department of *eye* ward with various symptoms of *eye* pathology. Our study is well supported by Eramudugolla et al.'s study reporting significantcorrelation between eyeailmentandiymptomsofdepression (Spearman's *p* =0.102, p<

0.01). It also reported signrflcant correlation between anxiety and eye-related pathologies{p ., 0.08, p < 0.05).23 Similarly, Barry and Rovner reported that subjects with Impaired vision were more at risk of having symptoms of depression as compared to those with Intact vlsion (29.7% vs. 85%; OR = 4.6, 95% Cl = 2.2, 9.6).24 They also reported significant correlation between depression and functional disability due to impaired vision (OR= 9.7, 95% Cl = 4.9, 19.2). They suggested that by addressing depression In patients with visual acuity Impairment, we can reduce functional disability associated with depression.

**LIMITATIONS**

Ophthalmological disorders are correlated with depression, and can to a great extent effect quality of life of the patiet'lts, making it a critical health concern for ophthalmologists. If patients with severe ophthalmologlcal diseases are referred to psychiatrists, to address

the risk of Increased depression and anxiety, ophthalmologists may enhance their patieiru' quality of life. Treatment of depression and/or anxiety in patlenB with visual impairment may also improve the prognosisand the dinlcal outcome of patients.

CONCLUSION

Ophthalmological disorders are c01related wilh depression, and CM to a great extent effect qual11y of life of tfu:**pa1imts. making** it a cri1ical heallh concern for ophthalmologists. If patients with severe ophlhalmological diS(a.o;es are reterred 10 ycbia1rist1- 10 address the risk of increased d sion and anxiety, ophthalmologist,; may enhMce their patients' quality of life. Treatment of .:kpression and/or anxiety in patients with visual impRinnent may ruso improve the prognosi and the clinical outcome of patients.

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