



REVIEW OF THE INVESTIGATION INTO THE IMPACT OF PSYCHOTHERAPY ON AMBLYOPIC PATIENTS' POOR COMPLIANCE AND MENTAL HEALTH

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Abstract

This review aims to highlight the impact of counselling on patients with amblyopia who exhibit low compliance and tranquilly. As there are very few eye care professionals who treat amblyopia at a particular age, counselling may affect how amblyopia is practised and treated. For this review, various publications were chosen based on the prevalence of amblyopia (n=5), the quality of life and psychosocial implications of amblyopia (n=15), therapeutic hurdles for amblyopia (n=5), and a questionnaire about the mental health of amblyopia patients (n=5). 2.7% was the prevalence, which included both unilateral instances (2.23%) and bilateral cases (0.50%).

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INTRODUCTION

Amblyopia is a visual condition caused by ocular illness in infancy that prevents the Low stereovision, poor visual acuity, poor pattern recognition, and poor sensitivity to motion and contrast are just a few of the drawbacks of amblyopia the development of vision is abnormal. (1) This syndrome is caused by an early ocular sickness that retards in one or both eyes. The term "lazy eye" is often used to describe amblyopia. Even if amblyopia is treated later in life, untreated amblyopia causes permanently decreased vision in the affected eye. This is the most common cause of visual loss in one eye in children and younger people. When the visual system is still growing and unable to provide the visual brain a clear image, amblyopia develops in infancy or anisometric refractive abnormalities that impact how one eye develops differently from the other may all lead to amblyopia. Amblyopia often appears unilaterally, however it may also be caused by bilateral cataracts or a substantial refractive error. After ruling out any other underlying visual diseases, amblyopia is determined by evaluating reduced visual acuity in one or both eyes that is out of proportion to the physical defect of the eye. When the refractive defect is rectified, it appears as a two-line or greater difference in intraocular acuity. Although it may be difficult to assess a child's by observing how they respond when one eye is covered, including how well they follow directions. Three primary conditions—deprivation, strabismus, and refractive—can all lead to amblyopia. Amblyopia may result from a disorder that blocks the visual pathway due to deprivation. It can be a cataract, corneal opacity, retinal degeneration, or another problem of the optic nerve. Even the closing one eye or being completely in the dark, may have a role. Amblyopia brought on by deprivation is the most severe kind. The medical name for both eyes being out of alignment is strabismus. Amblyopia affects up to 3% of people in various ways, and there is a 1.2% lifetime chance that it may result in visual loss, according to historical estimates. (20) The prevalence of amblyopia worldwide, according to more recent estimates, is 1.75 percent. The severity of amblyopia and if it is treated as a kid affect the prognosis. One of the most common causes of reduced vision in one eye is amblyopia, which has a considerable morbidity. Children who get occlusion therapy exhibit a reasonable restoration of vision in at least 75% of cases. However, the visual acuity of at least 50% of kids continues to deteriorate throughout time. The best outcomes for children are obtained via early referrals. However, as kids become older, the actual real-life visuals

often change significantly. (21)(22) But more than 70% of individuals see a noticeable improvement in their vision a year after beginning treatment. Over the following years, there can be some vision loss even after treatment. Amblyopic individuals struggle to perceive three-dimensional objects that are concealed in stereoscopic displays like autostereograms. The non-amblyopic eye, however, often still has normal depth perception via monocular signals including size, perspective, and motion parallax. Children with amblyopia may also have learning difficulties. Children who have to multiple-choice questions more slowly than those who do not (23) (24) Amblyopia may induce a poor binocular fusion, which can exacerbate strabismus. The need of early eye exams should be made clear to parents of young children. Amblyopia may be discovered for the first time during vision tests at school.

1.2 Compliance issue: Compliance is defined as a match between a patient's actual dosage and a healthcare professional's recommended dosage. Self-reports of amblyopia therapy noncompliance have their limits. It can refer to the duration and type of occlusion and has a variety of meanings. It's possible that the patient or carer is unable to explain the occlusion protocol. In our practise, low compliance is an obstacle to effective amblyopia therapy. Compliance is defined as a match between a patient's actual dosage and a healthcare professional's recommended dosage. Self-reports of amblyopia therapy noncompliance have their limits. It can refer to the duration and type of occlusion and has a variety of meanings. It's possible that the patient or carer is unable to explain the occlusion protocol. It is crucial to educate the general public about amblyopia, strabismus, and the importance of early detection for the best possible outcomes. There aren't many ways to notify parents about these problems and the necessity for screening. The presence of screening programmes in their community likely alerts the greatest amount of parents to the issue [41]. All of these issues can interfere with a child's daily life and last into adulthood[42]. Overall compliance decreases as a patient receives more treatment, but this is mostly due to an increase in the percentage of days [43] It is crucial to determine whether amblyopia is a handicap and whether it has any psychosocial consequences. In a study performed in May 1997 by Oxford University's Health Services Research Unit, 420 participants including medical professionals and people with amblyopia and their peers were asked about a variety of themes related to this condition. These inquiries centred on restrictions on

medication side effects, driving ability, educational opportunities, and social and personal growth. According to the study, amblyopia is both disabling for those who have it and for those who want to pursue a vocation in which they must have excellent eyesight. [44]. Additionally, it's likely that emphasizing proof of gains in visual acuity may increase the treatment's perceived effectiveness, which might encourage patients to continue wearing eye patches [45]. When treating amblyopia, occlusion or punishment can have a

detrimental effect on children's behaviour and family life.

METHODS –

We combed through all electronic database, including MEDLINE, Embase, SCI, PubMed, Research gate, web of science, from which we chose the top 40 publications. Out of those , 30 publications with strong supporting data were chosen satisfying the PRISMA.

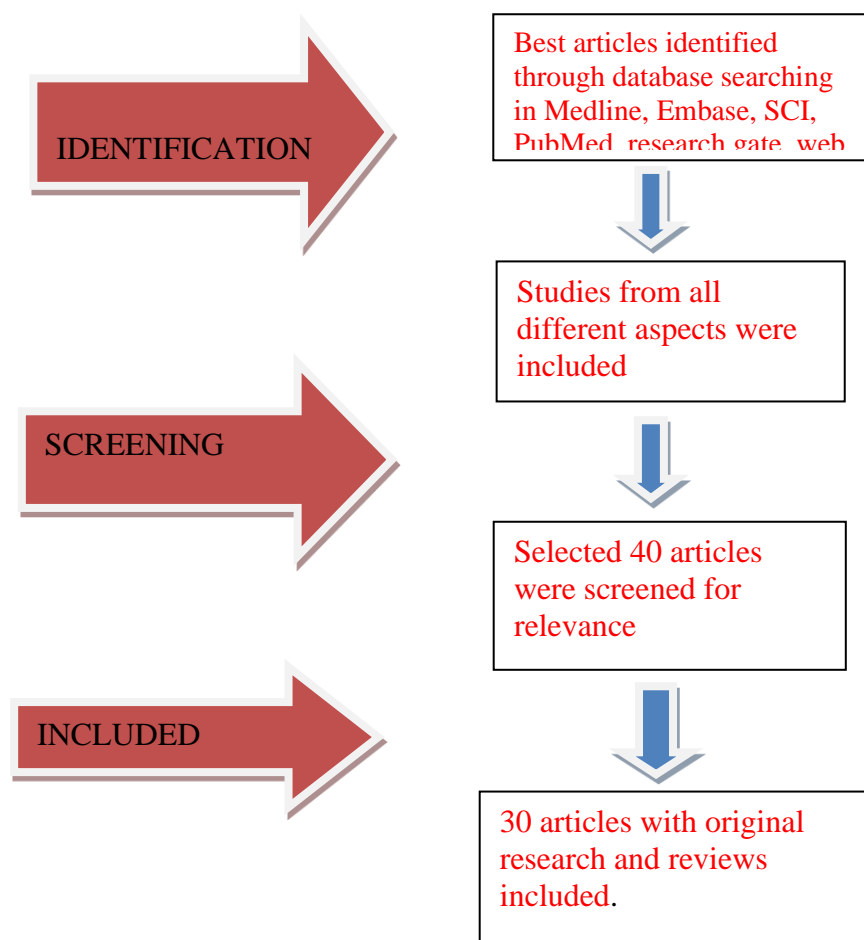


FIGURE 1: Flow chart for selection of systemic review

REVIEW OF LITERATURE-

In this review we selected 20 articles mainly focused on the topic, such as on the prevalence , reason for poor compliance and mental health of Amblyopia patients. In 2013, Sunil Ganekal et. al. ⁽¹²⁾ conducted a research on the incidence and causation of amblyopia in southern India in children between the ages of 5 and 15. The purpose of the research was to figure out how common amblyopia was among schoolchildren. In a cross sectional survey, 4020 children with ages ranging from 5 to 15 were chosen. Exam and best corrected visual acuity were performed. Amblyopia was 1.1% prevalent (n = 44). Girls (n=19) and boys (n=25) with amblyopia. 16 children had severe *Eur. Chem. Bull.* **2023**, *12(Special Issue 10)*, 2232 – 2237

amblyopia, compared to the 28 children who had mild to moderate amblyopia. Ametropia (50%), anisometropia (40.9%), strabismus (6.8%), and visual deprivation (4.5%) were the underlying causes. There was no statistically significant difference between children in rural areas (1.2%) and urban areas (0.9%) in terms of the prevalence of amblyopia (p=0.5). Research on the sociological and psychological elements that affect migrants' desire to adhere to amblyopia treatment was done in 2011 by Angela M. Tjam et al. ⁽¹³⁾. Researchers looked at how sociocultural and psychological variables affect compliance since parents with poor educational levels are less likely to adhere to amblyopia treatment. Amblyopic children in low

socioeconomic groups vary in age from 3 to 6. An oral questionnaire that asked parents about their demographics as well as inquiries about things like education, work, religion, and social connections was based on the socioeconomic standing and usage of social services by immigrants and natives. Electronic testing was done to determine compliance with amblyopia. Regression analysis was used to describe the relationship between the degree of compliance and sociocultural and psychological factors. Data from 45 parents and children were analyzed. Electronically measured average compliance was 56.4%. Children who were highly dependent on their parents or whose parents had strong bonds with their neighbours exhibited little respect for authority. Poor compliance was also associated with a low level of income and hopelessness when occlusion prevented a child from playing outside. Religion had nothing to do with cooperation. In 2010, Joost Felius et al. conducted a study to assess how difficult amblyopia treatment would be for both

parents and children. The purpose of the study was to investigate the psychometric qualities of the original parent and new child amblyopia treatment index (ATI), a questionnaire used to gauge the financial burden of amblyopia therapy on families and children. For each ATI version, 233 kids between the ages of 7 and 13 were administered the questionnaires; was evaluated using Cronbach's alpha. They examined the three subscales that were previously used in parent-child ATI research on younger children and found that they were consistent in both parent and child version.

RESULTS-

After collecting document from various aspects, we have chosen best articles on prevalence of Amblyopia (n=5), quality of life and psychosocial effects of Amblyopia (n=15), barriers in treatment for Amblyopia (n=5), questionnaire related to the mental well being of Amblyopia patients (n=5), selected for this review.

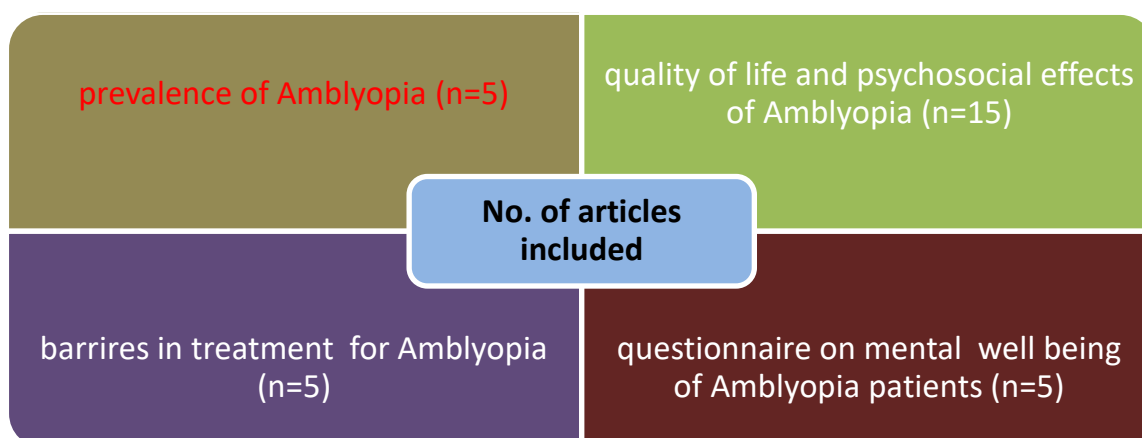


FIGURE 2: Diagram showing selected 30 articles for this review.

DISCUSSION

Amblyopia is a vision condition that develops over time as a result of early exposure to aberrant visual stimuli.⁽²⁾ A clinical evaluation may show that it is bilateral even though it is often unilateral. The ocular anatomy does not seem to alter as a result of amblyopia itself. Amblyopia may be treated early to prevent visual loss. Numerous studies have linked amblyopia to a range of functional challenges, including diminished stereopsis, worse reading comprehension, and motor skills including eye-hand coordination. Early detection and treatment of amblyopia are probably the best choice since these processes are so vital to a child's development. With a frequency estimate of 1-4%, amblyopia is the most prevalent cause of monocular vision loss in children.⁽⁸⁾ For example, dichoptic training⁽⁴⁾ may be used in addition to or

in place of the conventional patching therapy for amblyopia. They argue that amblyopia is primarily a binocular issue since early infancy binocular vision defects generate amblyopia and suppress the amblyopic eye. In many forms of therapy, the patient's motivation is crucial. Children with amblyopia need to be motivated to participate in their treatment, as opposed to adults who are often motivated to improve their vision and follow through with it.

CONCLUSION

Amblyopia may cause lifetime visual function impairment if it is not treated or is not treated properly. Identification of amblyopic individuals at an early stage is crucial for successful treatment. A substantial percentage of patients in a study on psychological effects of amblyopia on daily life

said that amblyopia interfered with their ability to learn (52%) and work (48%) and that it usually impacted their lifestyle (50%) as well as their ability to participate in sports (40%) or make decisions about their line of work (36%). The psychological difficulties brought on by amblyopia may affect a person's social interactions, job, academic achievement, and self-perception

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REFERENCES

1. Seignette K, Levelt CN. Amblyopia: The Thalamus Is a No-Go Area for Visual Acuity. *Curr Biol.* 2018 Jun 18;28(12):R709
2. YF choong , childhood amblyopia treatment:psychological implications for patients and primary carers,2004,*Eye*, vol.18, page no.369-375
3. Geertje W. Vandre Sterve Quality of life during Amblyopia therapy from the children and parents perspective, 2022,*BMC ophthalmology*, page no. 1-10
4. Aveen Kadhum, The barriers to successful amblyopia therapy in young children , *Graef's archive for clinical and experimental ophthalmology*, 2021, pageno 1-5.
5. Hashem . Prevalence of amblyopia and its determinants in a rural population , 2021,*Taylor and Francis*, vol 29, page no. 10-18.
6. Jill Carton. Comparison of the CAT-Qol and PedsQI instruments in measuring quality of life in amblyopia treatment ,2019, *Taylor and Francis*, page no.2-8
7. Sandra Guinamraes Quality of life and mental health in amblyopic children treated with and without amblyopia therapy,2019, *Journal AAPOS*
8. Sunil Ganekal , Prevalence and etiology of Amblyopia in south India,2013,*informa healthcare*, vol 20(4),page no.228-231
9. Sheela K Kumaran Patient –reported outcome measures in Amblyopia: a systemic review, 2017, *clinical and experimental optometry*, page no.1-25
10. Mohammad Faghihi Prevalence of amblyopia and its determinants in a population based study ,2017, *Taylor and Francis*, page no1-9
11. Gail D.E. Maconachie study on the challenges of amblyopia treatment, 2016, page no.1-7
12. Sunil Ganekal , prevalence and etiology of Amblyopia in southern India in the age group 5-15years, 2013, vol 20(4), page no. 228-231
13. Angela M Tjam , sociocultural and psychological determinants in migrants for non compliance with occlusion therapy for amblyopia,2011, page no. 1893-1899
14. Joost Felius , evaluating the burden of a amblyopia treatment from the parent and child's perspective, 2010, vol 14, page no 389-395
15. Jonathen M.Holmes further validation of the Amblyopia treatment index parental questionnaire,2008, *AAPOS*,page no 581-584
16. YF choong , childhood amblyopia treatment:psychological implications for patients and primary carers,2004,*Eye*, vol.18, page no.369-375
17. GVS Murthy refractive error in children in an urban population in New Delhi,2002, *Invest Ophthalmol Vis Sci*,page no 625-631
18. A Searle , psychosocial and clinical determinants of compliance with occlusion therapy for amblyopic children ,2002.*Eye*. vol 16, page no 150-155
19. Eric A.Packwood the psychosocial effects of amblyopia ,1999, *AAPOS*, vol 3, page no. 15-17
20. Webber AL, Wood J. Amblyopia: prevalence, natural history, functional effects and treatment. *Clin Exp Optom.* 2005 Nov; 88(6):365-75.
21. Kraus CL, Culican SM. New advances in amblyopia therapy II: refractive therapies. *Br J Ophthalmol.* 2018 Dec;102(12):1611-1614
22. Kelly KR, Jost RM, Wang YZ, Dao L, Beauchamp CL, Leffler JN, Birch EE. Improved Binocular Outcomes Following Binocular Treatment for Childhood Amblyopia. *Invest Ophthalmol Vis Sci.* 2018 Mar 01;59(3):1221-1228
23. Kelly KR, Jost RM, De La Cruz A, Dao L, Beauchamp CL, Stager D, Birch EE. Slow reading in children with anisometropic amblyopia is associated with fixation instability and increased saccades. *J AAPOS.* 2017 Dec;21(6):447-451
24. Kelly KR, Jost RM, De La Cruz A, Birch EE. Multiple-Choice Answer Form Completion Time in Children With Amblyopia and Strabismus. *JAMA Ophthalmol.* 2018 Aug 01;136(8):938-941
25. David hunter early diagnosis of amblyopia, 2018,*visual neuroscience*, vol 35, page no. 1-7
26. Ali Khalegi Toward using effective elements in adults' amblyopia treatment in a virtual

- reality based gamified binocular application,2022, Elsevier,vol43
27. Malinda Toomey Facilitators and barriers to the delivery of eye care by optometrists: a systematic review using the theoretical domains framework, 2021OPO
 28. Talia N. Shoshney . Identifying characteristics predictive of lost to follow up status in amblyopia, 2021, AJO.vol 230, page no 200-206
 29. Vedamurthy I, Nahum M, Huang SJ, Zheng F, Bayliss J, Bavelier D, Levi DM (2015) A dichoptic custom-made action video game as a treatment for adult amblyopia. *Vision Res* 114:173–187.
 30. Stewart CE, Moseley MJ, Stephens DA, Fielder AR (2004) Treatment dose-response in amblyopia therapy: the Monitored Occlusion Treatment of Amblyopia Study (MOTAS). *Invest Ophthalmol Vis Sci* 45:3048–3054
 31. Hess RF, Thompson B, Baker DH (2014) Binocular vision in amblyopia: structure, suppression and plasticity. *Ophthalmic Physiol Opt* 34:146–162
 32. Pineles SL, Aakalu VK, Hutchinson AK, Galvin JA, Heidary G, Binenbaum G, VanderVeen DK, Lambert SR (2020) Binocular treatment of amblyopia: a report by the American Academy of Ophthalmology. *Ophthalmology*
 33. Birch EE, Li SL, Jost RM, Morale SE, De La Cruz A, Stager D Jr, Dao L, Stager DR Sr (2015) Binocular iPad treatment for amblyopia in preschool children. *J AAPOS* 19:6–11.
 34. Levi DM (2020) Rethinking amblyopia 2020. *Vision Res* 176:118–129.
 35. Denis M. Levi ,Rethinking Amblyopia, 2020,vol176,page no. 118-129
 36. Wallace MP, Stewart CE, Moseley MJ, Stephens DA, Fielder AR. Compliance with occlusion therapy for childhood amblyopia. *Invest Ophthalmol Vis Sci*. Sep 17, 2013;54(9):6158–6166
 37. Stewart CE, Moseley MJ, Georgiou P, Fielder AR. Occlusion dose monitoring in amblyopia therapy: status, insights, and future directions. *J Aapos*. October 2017; 21(5):402–406
 38. Chopovska Y, Loudon SE, Cirina L, et al. Electronic recording of occlusion treatment for amblyopia: potential of the new technology. *Graefes Arch Clin Exp Ophthalmol*. Jun 2005;243(6):539–544
 39. Fronius M, Chopovska Y, Nolden J, et al. Occlusion treatment for amblyopia: assessing the performance of the electronic occlusion dose monitor. *Strabismus*. Jun 2006;14(2):65–70.
 40. Dixon-Woods M, Awan M, Gottlob I. Why is compliance with occlusion therapy for amblyopia so hard? A qualitative study. *Arch Dis Child*. June 2006;91(6):491–494.
 41. Ehrlich, M.I.; Reinecke, R.D.; Simons, K. Preschool Vision Screening for Amblyopia and Strabismus. Programs, Methods, Guidelines, 1983. *Surv. Ophthalmol*. 1983, 28, 145–163.
 42. Eileen E. Birch . Krista R. Kelly . Jingyun Wang Recent Advances in Screening and Treatment for Amblyopia *Ophthalmol Ther* (2021) 10:815–830 <https://doi.org/10.1007/s40123-021-00394-7>
 43. Wallace MP, Stewart CE, Moseley MJ, Stephens DA, Fielder AR. Compliance with occlusion therapy for childhood amblyopia. *Invest Ophthalmol Vis Sci*. Sep 17, 2013;54(9):6158–6166
 44. Snowdon SK, Stewart-Brown SL: Amblyopia and Disability. A Qualitative Study. Health Services Research Unit, Oxford University, May 1997
 45. Eileen E. Birch . Krista R. Kelly . Jingyun Wang Recent Advances in Screening and Treatment for Amblyopia *Ophthalmol Ther* (2021) 10:815–830 <https://doi.org/10.1007/s40123-021-00394-7>