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Quality of Life Outcomes of Long-Term Contact Lens Wear in Paediatric Populations

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Abstract

This literature review is focused on the critical appraisal of the quality-of-life issues associated with long-term contact lens wear in paediatric populations, positioning patient-reported outcomes. Paediatric contact lens wearers demonstrated significantly better outcomes in increased self-esteem, interpersonal skills, and participation in physical activities compared with spectacle wearers. Contact lenses controlled myopia progression. Lessons learned from the studies included problems with visual discomfort, dry eye symptoms, and possible contact lens-associated keratitis; therefore, strict hygiene rules are essential. The COVID-19 pandemic has also put much emphasis on contact lens hygiene. In summary, long-term wearing of contact lenses improves the quality of life in children. Further studies are warranted to clearly explain their long-term outcome and optimally set the condition for contact lens wear in paediatric populations.

Keywords: Long-term outcomes, Paediatric, Quality of life, Patient-reported outcomes, Myopia control, Visual discomfort, Contact lenses, Dry eye, Contact lens hygiene, Contact lens-associated keratitis, COVID-19.

Critical review of the literatures:

1. **Type of study:** A good number of the studies done were systematic reviews (Kandel H.et al,2022; Kandel H.et al,2017; Rueff EM et al.2023,Sánchez-Tena MÁet al.2022) and cross-sectional surveys (Bakkar MM et al,2021; Rah MJ et al,2010). Also, they have done few observational studies (Wang Y et al,2022; Rhee MK,2022;) and narrative reviews ((Koh (2020) and Maier et al. (2022).
2. **Data sources:**

- Systematic reviews (Kandel H.et al,2022; Kandel H.et al,2017; Rueff EM et al.2023;Sánchez-Tena MÁet al.2022): Various sources of data include PubMed, Embase, and the Cochrane Library.
- Primary research done (Wang Y et al,2022; Bakkar MM et al,2021; Rhee MK,2022; Rah MJ et al,2010): Data was collected from the participants.
- Most of the review studies have been done taking primary literature and expert opinion ((Koh (2020) and Maier et al. (2022).

3. **Methodology**:

- The majority of the Cross-sectional studies followed surveys or questionnaires (Bakkar MM et al,2021; Rah MJ et al,2010).
- Observational studies mostly followed clinical measurements and the procedure of follow-ups (Wang Y et al,2022; Rhee MK,2022;).

- PRISMA guidelines for the search of literature followed in Systematic reviews, screening, and data extraction.
- Quality of life assessments: Several different validated instruments were used including for example the Contact Lens Impact on Quality of Life (CLIQ) questionnaire (Kandel H.et al,2022; Kandel H.et al,2017).
- Clinical measurements: measurements taken included corneal epithelial thickness (Wang Y et al,2022), visual acuity (Rhee MK,2022;).
- Research tools: online questionnaires (Bakkar MM et al,2021;), number or vision-specific quality of life questionnaires (Rah MJ et al,2010)

4. Analysis:

- Some of the systematic reviews carried out meta-analyses ((Kandel H.et al,2022; Kandel H.et al,2017;Sánchez-Tena MÁet al.2022).
- Descriptive statistics, regression analyses, and comparative tests including t-tests and ANOVA were done in the primary studies.
- Narrative reviews (Koh (2020) and Maier et al. (2022).

5. Strengths:

- Diversified to comprehensively get perspectives on topic.
- Used validated tools for quality of life assessments.
- Included adult as well as children population

6. imitations:

- Some of these studies are under article because of small sample size or specific populations
- Cross-sectional designs limit causal conclusions
- Systematic reviews might be subject to publication bias.

The literature offers a solid framework for comprehending how wearing contact lenses affects several facets of ocular health and quality of life. Nonetheless, additional randomised controlled trials and longitudinal research could bolster the body of evidence in this area.

7. Thematic Review:

Quality of Life: In regards to quality of life, Rah et al., 2010, and Kandel, 2022, both demonstrated contact lens wear had a significantly increased quality of life to the pediatric populations. The studies evaluated indicated that the children have better self-esteem, social interaction, and participation in physical activities while wearing contact lenses rather than glasses.

Myopia Age Control: Contact lenses showed the ability to reduce the progression of myopia in children. The studies by Kandel, 2022 and the review by Jones et al., 2016 alluded to the fact that myopia control lenses—including orthokeratology lenses and soft multifocal lenses—have the capability of slowing myopia progression and giving long-term gains in the visual health of children.

Visual Discomfort and Safety: Rueff 2023, touched on the safety concerns and risks regarding the act of wearing contact lenses, a part of keratitis, and the proper hygiene practice relevant to the use of contact lenses.

During COVID-19: Bakkar and Alzghoul (2021) found that education and hygiene practices were paramount in contact lens wearers but even more so under the conditions of COVID-19. This is necessary due to the dilemma of their study in calling for increased awareness and adherence to hygiene protocols to prevent complications and ensure paediatric contact lens wearer safety.

Long-Term Outcomes: Wang et al. (2022) and Rhee et al. (2022) both raised the importance of doing longitudinal studies for understanding long-term outcomes associated with contact lens wear. Their works inferred that there should be the regular monitoring and safety assessment of contact lens wear among children.

Research Gaps:

There are several research gaps related to contact lens wear in the pediatric population. One of the identified gaps is long-term quality-of-life outcome information, as current studies all lack follow-up data to report on patient-reported outcomes with regard to school performance, social interactions, and psychological well-being. There is indeed a pressing need for validated, child-centered patient-reported outcome measures that would facilitate consistent comparisons and thus allow authors to draw definitive conclusions about benefits pertaining to contact lens wear. It calls for practical intervention strategies that deal with issues concerning safety and irritations like dry eye and keratitis in young children with poor hygiene practices, as inferred in Rueff 2020; Maier et al., 2022; Koh 2020. The cost-effectiveness of the lenses used in myopia control such as orthokeratology and soft multifocal lenses in the long term has not been accounted for. On this note, there is also a requirement for monitoring the impact of hygiene precedence changes as a result of the COVID-19 pandemic on the safety and efficiency with which contact lenses are worn by children, who may need more education and support according to Bakkar & Alzghoul, 2021. Further research like this should be expanded into various cultural and regional contexts to establish how socio-economic factors and care-related practices at the local healthcare level affect outcomes.

Conclusion:

A review of the literature found that both adults and children who wear contact lenses for an extended period of time report higher quality of life. Improvements to the quality in social skills and self-esteem are further advantages of managing myopia. Those who wear paediatric contact lenses, in particular, benefit from improved vision and can participate actively in physical activities. However, there are a number of issues that necessitate close attention to hygiene and care procedures, including visual discomfort, symptoms of dry eyes, and the possibility of keratitis linked to contact lenses. In addition, the COVID-19 pandemic has put even more emphasis on the necessity of maintaining adequate hygiene when wearing contact lenses. Thus, in spite of the benefits, safety is enhanced by ongoing education and adherence to hygienic regulations. It is necessary to conduct further study in this field to fully
comprehend the long-term quality-of-life results and optimize contact lens wear in paediatric populations.

References:

1. Bakkar MM, Alzghoul EA. Assessment of contact lens wearers' attitude toward contact lens wear and care during Coronavirus Disease 2019 (COVID-19) pandemic: A cross-sectional online survey. Cont Lens Anterior Eye. 2021 Dec;44(6):101410. doi: 10.1016/j.clae.2021.01.005. Epub 2021 Jan 14. PMID: 33461877; PMCID: PMC7832052.
2. Kandel H, Khadka J, Goggin M, Pesudovs K. Patient-reported Outcomes for Assessment of Quality of Life in Refractive Error: A Systematic Review. Optom Vis Sci. 2017 Dec;94(12):1102-1119. doi: 10.1097/OPX.0000000000001143. PMID: 29095758.
3. Kandel H. Quality-of-life outcomes of long-term contact lens wear: A systematic review. Cont Lens Anterior Eye. 2022 Feb;45(1):101521. doi: 10.1016/j.clae.2021.101521. Epub 2021 Oct 14. PMID:

34656447.
4. Koh S. Contact Lens Wear and Dry Eye: Beyond the Known. Asia Pac J Ophthalmol (Phila). 2020 Dec;9(6):498-504. doi: 10.1097/APO.0000000000000329. PMID: 33284229.
5. Maier P, Betancor PK, Reinhard T. Contact Lens-Associated Keratitis-an Often Underestimated Risk. Dtsch Arztebl Int. 2022 Oct 7;119(40):669-674. doi: 10.3238/arztebl.m2022.0281. PMID: 35912449; PMCID: PMC9830382.
6. Rah MJ, Walline JJ, Jones-Jordan LA, Sinnott LT, Jackson JM, Manny RE, Coffey B, Lyons S; ACHIEVE Study Group. Vision specific quality of life of pediatric contact lens wearers. Optom Vis Sci. 2010 Aug;87(8):560-6. doi: 10.1097/OPX.0b013e3181e6a1c8. PMID: 20562669.
7. Rhee MK, Jacobs DS, Dhaliwal DK, Szczotka-Flynn L, Prescott CR, Jhanji V, Steinemann TL, Koffler BH, Jeng BH. Contact Lens Safety for the Correction of Refractive Error in Healthy Eyes. Eye Contact Lens. 2022 Nov 1;48(11):449-454. doi: 10.1097/ICL.0000000000000938. Epub 2022 Jun 10. PMID: 36282872; PMCID: PMC9584055.
8. Rueff EM. Visual discomfort and contact lens wear: A review. Cont Lens Anterior Eye. 2023 Aug;46(4):101872. doi: 10.1016/j.clae.2023.101872. Epub 2023 Jun 4. PMID: 37277259.
9. Sánchez-Tena MÁ, Martinez-Perez C, Villa-Collar C, Alvarez-Peregrina C. Long-term effect of contact lens wear: A citation network study. Cont Lens Anterior Eye. 2022 Feb;45(1):101527. doi: 10.1016/j.clae.2021.101527. Epub 2021 Oct 31. PMID: 34732300.
10. Wang Y, Zhang X, Yang X, Xu Y, Luo B, Qian Y. Effects of long-term soft contact lens wear on corneal epithelial thickness after small incision lenticule extraction. Exp Ther Med. 2022 Jan;23(1):8. doi: 10.3892/etm.2021.10930. Epub 2021 Oct 28. PMID: 34815760; PMCID: PMC85.