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Internalizing symptoms and quality of life in autistic adults: A systematic review of the role of anxiety and depression

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ABSTRACT

Objective: This systematic review aimed to provide an updated synthesis of research on quality of life among autistic adults, with a particular focus on the role of internalizing symptoms, specifically anxiety and depression. **Method:** Following PRISMA guidelines, a systematic search was conducted in Scopus, Web of Science, and PubMed. Seventeen studies, comprising a total of 3,645 participants, met the inclusion criteria and examined the associations of anxiety and depressive symptoms or diagnoses with quality of life in autistic adults. **Results:** The findings consistently indicated that anxiety and depressive symptoms were associated with poorer quality of life among autistic adults. Internalizing symptoms were also associated with other factors, including loneliness, job dissatisfaction, and social participation. Findings regarding age and gender suggested differences in both well-being and internalizing symptoms, with autistic women generally showing greater vulnerability. **Conclusions:** Anxiety and depression appear to be important correlates of quality of life in autistic adults and should be considered alongside relevant social and contextual factors. The variables identified in this review may help inform the development of interventions aimed at improving emotional well-being and quality of life in autistic adults.

Keywords: Autism spectrum disorders; anxiety; depression; quality of life; systematic review.

Síntomas internalizantes y calidad de vida en adultos con autismo: Una revisión sistemática del papel de la ansiedad y la depresión

RESUMEN

Objetivo: Esta revisión sistemática tiene por objetivo actualizar el estado de la investigación sobre la calidad de vida de los adultos con trastorno del espectro autista, analizando el papel de la sintomatología internalizada. **Método:** Siguiendo la metodología PRISMA, se incluyeron diecisiete artículos de diferentes bases de datos (Scopus, Web of Science y PubMed) centrados en el impacto de la sintomatología o diagnósticos de depresión y ansiedad en la calidad de vida de adultos autistas, implicando a un total de 3645 participantes. **Resultados:** Los resultados muestran cómo la calidad de vida de los adultos autistas se ve afectada por la presencia de síntomas tanto de ansiedad como de depresión. Además, los síntomas internalizados suelen aparecer como consecuencia de otras variables, como la soledad, la insatisfacción laboral o la participación social. El papel del género y la edad también ofreció resultados relacionados con los niveles de bienestar y la presencia de síntomas internalizados, afectando especialmente a las mujeres. **Conclusiones:** Las variables destacadas en la revisión deben considerarse a la hora de plantear intervenciones destinadas a mejorar el bienestar emocional y la calidad de vida de los adultos autistas.

Palabras clave: Trastornos del espectro del autismo; ansiedad; depresión; calidad de vida; revisión sistemática.

Introduction

Autism spectrum disorder (ASD) is a multifaceted and heterogeneous neurodevelopmental condition characterized by challenges in social interaction and

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communication, and the presence of repetitive behaviors (DSM-5-TR; APA, 2022). Recent research has shown that autism diagnoses are becoming more common, showing a prevalence of one in 36 in epidemiological studies (Maenner et al., 2023). This upward trend underscores the urgent need to comprehend the full spectrum of challenges faced by autistic individuals. Although research has offered valuable insights into the core features of autism, facilitating early detection, intervention strategies, and recognition of the unique strengths of individuals with autism, it is still necessary to expand a comprehensive understanding of this condition, particularly related to the transition into adulthood. This transition for autistic people is marked by societal expectations, employment, relationships, and independent living (Backman et al., 2023), further compounded by the co-occurrence of internalizing psychopathologies (Linden et al., 2022). In this sense, a comprehensive understanding of autism demands an exploration of its complexity, delving beyond the surface to address the prevalence of comorbid psychopathologies, which is the norm rather than the exception in this population (Leader et al., 2022), and where anxiety and depression emerge prominently.

As the complexities of autism are explored, it becomes evident that comorbid psychopathologies, notably internalizing ones such as anxiety and depression, play a pivotal role in shaping the experiences of autistic individuals, especially in adulthood (Crane et al., 2019; Lawson et al., 2020). Epidemiological research reveals a substantial prevalence of clinically significant symptoms of anxiety and depression in autistic adults, surpassing rates observed in the general population (Lever & Geurts, 2016; Nah et al., 2018). Despite the importance of this high prevalence, the relationship between anxiety, depression and autism is not clear since most research on comorbidity in autism has focused on children and young people (Moss et al., 2017; Navarro-Gómez & Trigueros-Ramos, 2025). Many autistic people live with high levels of anxiety and depression without being diagnosed and consequently without receiving treatment for these symptoms. This heightened prevalence and the significant impact of psychopathologies on people's lives emphasizes the necessity to comprehensively examine the impact of internalizing psychopathology on the Quality of Life (QoL) of adults with autism (Alsubaie et al., 2019; Veiga et al., 2022; Wilmer et al., 2021).

In line with the literature on disability, QoL is understood as a multidimensional concept grounded both in Schalock and Verdugo's QoL model and in the perspective of the World Health Organization (WHO, 1995). According to Schalock and Verdugo (2002), QoL encompasses multiple interrelated domains of personal well-being (e.g., physical, emotional, social, material, and personal development) and is enhanced through appropriate supports and full participation in the community. Additionally, the WHO emphasizes that QoL is an individual's perception of their well-being in physical, psychological, social, and contextual dimensions—beyond the mere absence of disease—within the context of their values and environment (WHO, 1995). Integrating these complementary theoretical frameworks allows us to assess the QoL of autistic individuals in a holistic and person-centered manner, considering both individual and environmental factors that influence their well-being and participation.

Research on the QoL of autistic individuals has historically been skewed towards the early stages of life, particularly childhood and adolescence, as shown by studies such as Ayres et al. (2018). However, there is a noticeable dearth of research about the QoL of autistic adults, particularly among those over the age of 50, as Wise et al. (2017) have highlighted. Furthermore, the QoL of autistic individuals who also have a comorbid intellectual disability (ID), whether in their childhood or adulthood, remains an understudied area (Sáez-Suanes & Álvarez-Couto, 2022).

Recent research, such as those by Oakley et al. (2021), has attempted to bridge this knowledge gap by examining various factors contributing to poor outcomes and QoL in adults on the spectrum. In terms of QoL, several conclusions have emerged from these studies.

Concerning social status, it has been highlighted that the QoL of autistic adults is intrinsically tied to their level of social integration and the quality of their interpersonal relationships. Meaningful social connections and a sense of belonging can significantly improve their well-being (Tomfohrde et al., 2022). For instance, social skills training and support groups (such as mentoring programs) have been shown to help autistic individuals in their efforts to build and maintain relationships, which, in turn, enhance their QoL (Moody & Laugeson, 2020). Another variable highlighted in the research concerning the QoL of people on the autism spectrum is the education and training possibilities of this population, both during their academic years and at the end of compulsory schooling. Continuing education and skills development are instrumental in promoting a better QoL for autistic adults (Hull et al., 2025; McConachie et al., 2018).

Access to gainful employment is another of the QoL related variables highlighted by research because it not only contributes to financial security but also fosters independence and a sense of purpose (Davies et al., 2024; Oakley et al., 2021). Closely related to employment,

research has underscored independent living as a significant variable that influences QoL. Access to housing options that accommodate their unique needs and preferences, including appropriate support structures, is vital (Al Ansari et al., 2024; Ayres et al., 2018).

While the QoL of autistic adults is influenced by a myriad of factors, it is essential to acknowledge the role of mental health conditions in this context. The presence of internalizing psychopathology, such as anxiety and depression, can indeed impair QoL (MacKenzie et al., 2024; McConachie et al., 2018). The sensory sensitivities often associated with autism can lead to sensory overload and distress, further exacerbating mental health challenges. Moreover, difficulties in communication and interpreting social cues may lead to social isolation, frustration, and an increased risk of mental health conditions (Balasco et al., 2020; Recio et al., 2024).

Access to suitable mental health services, designed to meet the unique needs of autistic individuals, is crucial. In a comprehensive review conducted by Shattuck et al. (2012), which spanned the period from 2000 to 2010, it was strikingly revealed that out of approximately 11000 research studies, only a mere 23 were centered on services for autistic adults. This glaring lack of data highlights a significant research gap, especially when considering the importance of support services in influencing the QoL of autistic individuals.

Comprehensive care can address these mental health issues, alleviate their impact on QoL, and provide individuals with the necessary tools to lead fulfilling lives. It is evident from the current research landscape that there is an urgent need for a more extensive exploration of the QoL of adults within the autism spectrum and the multifaceted factors that influence it. For instance, the influence of internalizing psychopathology on QoL impairment has been highlighted, but there is no evidence that it is one of the best predictors of poor QoL in autistic adults. Indeed, only a little research has identified that the presence of any diagnosed mental health condition negatively predicted QoL in autistic adults (McConachie et al., 2018). The understanding of the interplay between social factors, education, employment, and mental health conditions is critical in tailoring interventions that truly enhance the QoL of this population. Thus, QoL must remain at the forefront of interventions for autistic adults, a point emphasized by studies such as Ayres et al. (2018) and Kim (2019).

Therefore, it is necessary to clarify the impact of anxiety and depression symptomatology on the QoL of autistic people. More specifically, it is precise to know the appreciation of adults within the spectrum about the role of this symptomatology to their perceived QoL.

As mentioned, autistic people have high rates of anxiety and depression throughout their adult life (Andersen et al., 2015), exceeding those reported in the general population (Nah et al., 2018; Williams et al., 2021). Despite this high prevalence, comorbid symptoms in autistic people are often poorly understood, underdiagnosed, and inadequately treated. In part, this is because studying comorbidity in autism is a complex endeavor, as core autistic traits frequently overlap with symptoms of anxiety and depression. This problem, known as diagnostic overshadowing (Rosen et al., 2018), refers to the difficulty of recognizing the symptoms of comorbid pathology due to its similarity to the core characteristics of autism. The overshadowing leads to people within the spectrum living with high levels of anxiety and depression without any treatment. This translates into problems in their social inclusion and well-being and may affect their quality of life (Veiga et al., 2022; Wilmer et al., 2021).

Studies in the non-autistic population have found a significant impact of anxiety and depression on their QoL (Alsubaie et al., 2019; Henning et al., 2007; Veiga et al., 2022; Wilmer et al., 2021). Given the high relationship between autism and internalizing symptoms, it stands to reason that autistic people who have associated psychopathologies have worse QoL scores.

For this reason and following a meticulous exploration of existing literature and empirical studies, this review endeavors to shed light on the intricate connections between internalizing psychopathology and the QoL experienced by autistic adults.

By addressing these questions, this research seeks to contribute valuable insights to both clinical practices and further research, fostering a holistic understanding of the challenges and opportunities for this unique population. The study aims to answer these questions:

(1) How does internalizing psychopathology impact the QoL of autistic adults? Unravelling the specific ways in which anxiety and depression manifest and influence the overall QoL is pivotal for tailoring effective interventions. This question directs our attention to the nuanced experiences of individuals navigating the intersection of autistic symptoms and internalizing psychopathologies.

(2) To what extent do anxiety and depression serve as determinants of the overall well-being of autistic adults? This query aims to elucidate whether these internalizing psychopathologies act as primary factors shaping the QoL or if there are other intricate dynamics at play.

(3) Beyond anxiety and depression, what other factors contribute significantly to the QoL in autistic adults? This question broadens the scope of our inquiry,

recognizing the multifaceted nature of autism and the potential diversity of influences on well-being.

Method

To carry out this review, we followed the preferred reporting items for systematic reviews and meta-analyses (PRISMA). The review protocol was registered at The Open Science Framework with the number osf.io/xe238.

Inclusion and exclusion criteria. Investigations taking part of this review have followed the following inclusion criteria:

(1) Participants over 18 or who have turned 18 at the time of the study.
(2) Participants with a clinical diagnosis of autism (prior to recruitment).
(3) Articles including assessment of depression and/or anxiety symptomatology or formal diagnosis.
(4) Articles referring to quality of life.
(5) Studies published in English between 2010 and 2024 from any country.

The exclusion criteria were as follows:

(1) Participants under the age of 18.
(2) Absence of explicit references to quality of life
(3) Articles without a measure of internalizing symptoms or without a formal diagnosis
(4) Studies published in a language other than English.

As an exception and given the inclusion criterion of being at least 18 years old, a study was included in which a small number of 17-year-olds were present in a predominantly adult sample, given the limited available evidence and the relevance of its findings to the review's objectives. The language criterion was established to ensure participation and objectivity in the review process by the research team, which consisted of researchers from different countries.

Search strategy

A structured search strategy was developed using a combination of keywords. Key search terms used were "autis*" OR "ASD" AND "quality of life" AND "anxi*" OR "depress*" OR "mood disorders". The bibliographic databases used for the search were Web of Science, Scopus, and PubMed. The search extracted 854 articles published between 2010 and 2024. The search and selection of the articles were conducted between December 2024 and January 2025.

Study selection process

The articles in the search process were selected through a screening of their titles and abstracts, according to the inclusion criteria. Three reviewers have overseen this task, solving the disagreements by discussion or by involving other researchers when agreement or resolution could be found.

Three independent reviewers screened the titles and abstracts and subsequently evaluated the full texts of the potentially relevant studies. Any discrepancies in the selection or review of the studies were resolved through discussion and consensus, with the involvement of a third reviewer when necessary.

Assessment of methodological quality

The included studies were subjected to independent analyses of their methodological quality, carried out by the reviewers (S. G. P.; A. M.; P. R.). The Cochrane Collaboration (Higgins et al., 2011) tool was used to assess the risk of bias in the studies. Cochrane is a powerful tool to improve the quality of research and support decision-making by specialists. Researchers promote it from 130 countries around the world. Its bias assessment tool allows us to better understand the quality of the research. Although many items are not applicable in studies such as those included here, their use gives us an overview of what the strengths and areas for improvement are in this research. In addition, they offer us a guide for better understanding and generalization of the results.

Results

The selected studies have followed an evaluation and screening process that is represented in the flow chart (Figura 1).

From Scopus database 223 articles were collected and 45 were preselected. After reading the titles and abstracts, 11 of them met the inclusion criteria. From the Web of Science database, 490 results were obtained, and 13 were preselected. Six of them were included in the review after reading the abstracts, of which five were duplicated and one was finally chosen. Fifty-two of the 138 studies taken were selected from the PubMed database. After reviewing the abstracts, 14 met the inclusion criteria, of which nine were duplicates. Seventeen papers found by the search strategy fulfilled the review criteria. Table 1 shows the most relevant information from the articles included in the review.

The combined sample size has been formed by 3645 autistic adults, with a high representation of females (*n*

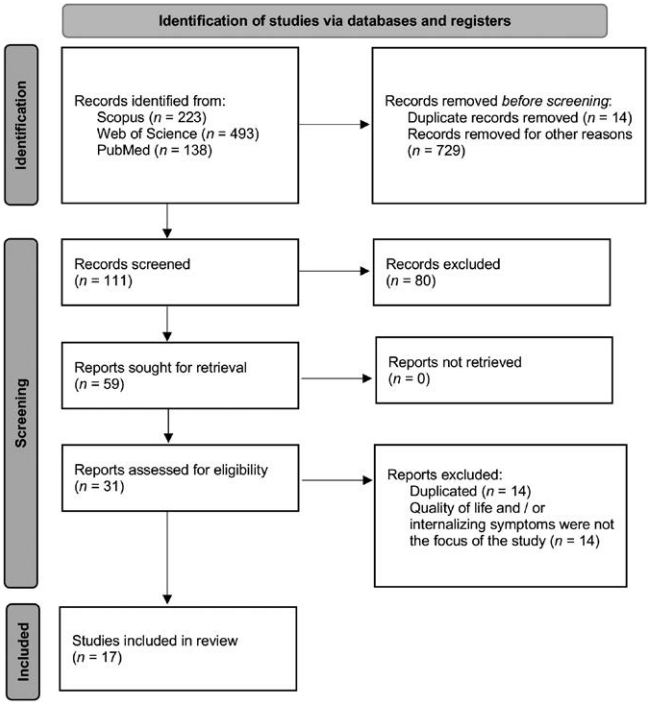

Figure 1. PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analyses) flow diagram, depicting the screening processes.

= 1861). Smith et al. (2019b) and Yarar et al. (2022) studies did not indicate the number of participants by gender, and 50 of the participants did not recognize themselves as man or woman (Benevides et al., 2020a; Mason & Happé, 2022; Stacey et al., 2018). Benevides et al. (2020a) reported 105 participants who did not indicate gender, and Smith et al. (2019a) and Yarar et al. (2022) did not add any reference to gender. Ages of the participants were between 17 and 72 years old. Only 188 of the participants had a diagnosis of ID (one in Mason & Happé, (2022); one in Mason et al., (2019); 20 in Smith et al. (2019b); 166 in Song et al., (2021)), with only Smith et al. (2019b) study completely focused on autistic adults and ID. Countries in which the investigations have taken place were the USA (n = 7), the UK (n = 6), Australia (n = 2). Germany (n = 1) and Spain in collaboration with different countries from Central and South America (n = 1).

How does internalizing psychopathology impact the QoL of autistic adults?

Of the 17 reviewed articles, several highlight the impact of internalizing symptoms on the QoL of adults on the spectrum. The main conclusions suggest that both anxious and depressive symptoms have a negative impact on the QoL of autistic adults, with some nuances and specific points. Firstly, several studies emphasize the high rates of anxiety and depression in the adult autistic population. Specifically, in Murray et al.'s study (2019), 46% of participants met the criteria for moderate to severe depression, and 37% showed moderate to severe levels of anxiety.

Regarding anxiety, it has been directly identified as an influencing factor in the decline of different domains of self-perceived QoL by Charlton et al. (2023), Mason and Happé (2022), Mason et al. (2019), Morales et al. (2022), Murray et al. (2019), Smith et al. (2019a), Smith et al. (2019b), and Williams and Gotham (2022). All these studies agree that anxious symptoms impact QoL, reducing it. While Charlton et al. (2023), Mason et al. (2019), Morales et al. (2022), and Williams and Gotham (2022) generalize this negative impact to overall QoL, Mason and Happé (2022) and Mason et al. (2019) exclude the social domain. In both studies, the impact of anxiety on the decline of QoL is recognized in physical and psychological domains but not in the social domain. In fact, Mason et al. (2019) emphasize the maintenance of friendships as a stressful factor for autistic adults.

Only the studies by Schiltz et al. (2020) and Smith et al. (2019a) have analyzed a specific anxiety disorder, concretely social anxiety. In both studies, the results are similar, highlighting the indirect relationship between levels of social anxiety and QoL. The higher the social anxiety symptoms, the lower the QoL. In this sense, Schiltz et al.'s (2020) study includes the variable of loneliness, emphasizing the relationship between social anxiety and loneliness (social anxiety symptoms lead to loneliness) and the negative impact this relationship has on the development of positively valued social relationships in the social domain of QoL.

Charlton et al. (2023), Mason and Happé (2022), Mason et al. (2019), Morales et al. (2022), Thiel et al. (2024) and Williams and Gotham (2022) also include depressive symptoms in their studies as a mental health factor related to lower QoL. In fact, while anxious symptoms were proposed as a variable related to the decrease in some QoL domains, depression is presented as an impacting variable in all of them, including the social domain. Therefore, depression becomes a variable that has a greater negative impact on QoL compared to anxiety.

Yarar et al.'s (2022) study highlights that depressive symptoms reported by autistic adults significantly affect self-perceived QoL directly, so a higher report of this symptomatology is related to worse QoL. Thiel et al. (2024) specifically found that depressive symptoms significantly impact the QoL of autistic adults, negatively

Table 1. Characteristics of the studies included in the systematic review

Author	Year	Country	Sample	Objectives	Variables and Measures	Results
Benevides et al.	2020a	USA	*n* = 236 autistic people (aged 18+; 78 females; zero ID): formal diagnosis (*n* = 182) and self-diagnosed (*n* = 54). Focus group (*n* = 26).	To describe the multiple methods used to identify and ascertain autistic adult perspectives related to mental health practice and the specific mental health research priorities.	- Demographic variables; therapies and therapeutic activities; mental health problems; level of social participation; affective-sexual relationships: ad hoc online survey and focus group.	- People with ASD desire for research to focus on improving quality of life and social wellbeing outcomes with approaches that address social barriers such as stigma and discrimination and on mental health. - People whose preferences were expressed for more medical, farmacological or cognitive-behavioural approaches, expressed a desire for short- and long-term side effects to be evaluated and for them to be adapted and applied by autistic peers.
Charlton et al.	2023	USA	*n* = 388 autistic people (aged 40-60+; 277 females; zero ID).	To examine social support and its associations with QoL among middle-aged and older autistic adults.	- QoL: WHOQOL-BREF. - ASD QoL: ASQOL. - Social support: DSSI. - Depression and anxiety: PHQ.	- Subjective social support significantly contributed to the models for all aspects of QoL. - Social interactions contributed to the models for Physical and Psychological QoL. - Instrumental support contributed to models for social, environmental and autism-specific QoL. - Social support is an important contributor to the QoL of middle-aged and older autistic adults, after accounting for demographic factors and depression.
Hedley et al.	2019	Australia	*n* = 36 autistic people (aged 18-57; 4 females; zero ID).	-To chart a 12-month change in job satisfaction, mental health and well-being of newly employed adults with ASD participating in a supported employment programme. -To identify possible predictors of negative mental health and positive well-being.	- Daily living skills: W-ADL. - ASD: AQ-S. - Social support: ISEL-12. - Job satisfaction: MSQSF. - Depression: PHQ. - Anxiety: DSM-5- DAS. - Well-being: WEMWBS.	- Positive well-being negatively predicted depression at follow-up. No predictors of anxiety were identified. - Social support and depression were associated with positive well-being at follow-up; however, they were no longer significant predictors once the effects of baseline positive well-being were taken into account.
Mason and Happé	2022	UK	*n* = 42 autistic people (aged 18+; 21 females; one ID) and *n* = 91 comparison participants.	To address the questions: -How are autistic traits and alexithymic traits associated with QOL? -Is the association between autistic traits and QOL mediated by alexithymia? -When considered categorically, is there a difference in QOL domains?	- ASD: AQ-10. - Alexithymia: TAS-20. - QoL: WHOQOL-BREF. - Depression: PHQ. - Anxiety: GAD-7.	-Depression significantly predicted Physical, Psychological, and Social QoL. -When examining the impact of just alexithymic traits and autistic traits, both were significantly associated with Physical and Psychological QoL. -Depression and anxiety exert direct effects on Physical and Psychological QoL, whereas alexithymia scores may influence Physical QoL via autistic traits.

Table 1. Characteristics of the studies included in the systematic review (cont)

Author	Year	Country	Sample	Objectives	Variables and Measures	Results
Mason et al.	2019	UK	*n* = 69 autistic people (aged 55+; 21 females; one ID)	To investigate whether there is an association between the presence of mental health conditions, subjective QoL and participation in normative outcomes in older autistic people	- ASD – UK registration questionnaire: 10 domains of participant's life: diagnosis; everyday life; home life; employment; education; support; mental health; physical health; ASD in other family members. - Anxiety and depression: HADS. - Subjective QoL: WHOQOL-BREF. - Qualitative interview: topics: general life experiences; quality of life: diagnosis, post-diagnosis, physical health, mental health, personal relationship, living arrangements, social support, social communication, education, transitioning and employment.	-QoL is reported to be significantly lower for individuals who meet indicative clinical caseness based on self-reported symptoms of both anxiety and depression. -Interventions with a primary focus on increasing employment, socializing, or independent living may not be relevant or beneficial for some older autistic people. -Maintaining friendships can be stressful for autistic people. -The support needs of older autistic people may not necessarily be related to assumed 'normative outcomes': friendships, employment and living situations may all carry a mixture of benefits and stresses which are particular to autistic individuals.
Mazurek	2014	USA	*n* = 108 autistic adults (aged 18-62; 51 females; zero ID).	To examine the relations among loneliness, friendship, and emotional functioning in adults with autism spectrum disorders.	- ASD: AQ-S. - Loneliness: ULS-8. - Friendship status: questionnaire ad hoc. - Friendship quality: URCS. - Life satisfaction: SWLS. - Self-esteem: RSE. - Depression and anxiety: PHQ.	-Loneliness was associated with increased depression and anxiety and decreased life satisfaction and self-esteem. -Greater quantity and quality of friendships were associated with decreased loneliness. -Friendship did not moderate the relationship between loneliness and well-being. -Number of friends provided unique independent effects in predicting self-esteem, depression, and anxiety above and beyond the effects of loneliness.
Morales et al.	2022	Spain; Central and South America	*n* = 809 autistic people (aged 23-45; 744 females: formally diagnosed *n* = 401 and self-diagnosed *n* = 343; zero ID). *n* = 373 women without ASD.	To analyze the QOL of a large group of women with a diagnosis of ASD compared to men with the same diagnosis, women with self-diagnosis and women without diagnosis.	- Online survey: sex, age, country, presence of psychopathological comorbidities. - Self-perceived Quality of Life: PWI-A.	-ASD women sample: psychopathological comorbidities were present in 77.6% of cases, with anxiety disorders (45.9%) and depressive disorders (38.7%) being the most prevalent. -Self-diagnosis group: high rates of anxiety disorders (39.7%) and depressive disorders (31.2%), but significantly lower than ASD group. - Psychopathological comorbidities were less common in males (43.08%). -Women with ASD (former diagnosis or self-diagnosis) showed significantly lower wellbeing rates than women without ASD. - No super additive effect of psychopathological comorbidities such as anxiety or depression was found in the decrease of perceived wellbeing. - ASD itself is a significant factor in the decrease in QoL, much more than other psychopathological or sociodemographic variables.

Table 1. Characteristics of the studies included in the systematic review (cont)

Author	Year	Country	Sample	Objectives	Variables and Measures	Results
Murray et al.	2019	UK	*n* = 88 autistic adults (aged 18-74; 24 females; zero ID) compared to *n* = 28 diagnosis disconfirmed (aged 18-66; 4 females; no ID).	To investigate the symptom profile of anxiety and depression, and its correlates (i.e., age at diagnosis, gender, and ASD severity) in a group of adults who were referred to a specialist diagnostic center for autism and whose diagnosis was confirmed.	- Anxiety: BAI. - Depression: BDI. - ASD severity: AQ.	- The results highlighted elevated symptoms of anxiety and depression symptoms in the diagnosed population; 37% of the population met criteria for moderate or severe anxiety, and 46% met criteria for moderate or severe depression. - Anxiety was associated with (lower) age, increased self-reported autism symptom severity, and was marginally more elevated in females, and this elevation was most evident in young to middle adulthood: younger females with increased autism severity may be most at-risk of developing anxious affect. - Depression symptoms were elevated in males and females in young adulthood and decreased thereafter, with the decrease in males occurring earlier in adulthood.
Schiltz et al.	2020	USA	*n* = 69 autistic young adults (aged 17 – 29; 13 females; zero ID).	-To explore links between loneliness, mental health concerns, autism features, and social contact among autistic adults. -To test whether the links between mental health with autism features and social contact can be explained by loneliness.	- Autism features: AQ. - Friendship: FQ. - Loneliness: SELSA. - Social anxiety symptoms: SPIN; LSAS. - Depression symptoms: BDI.	-Loneliness plays an important role in social anxiety and depression among autistic young adults. -Number of initiated social contacts and social loneliness did not independently predict mental health concerns—instead, social loneliness mediated the effect of social contact. -Addressing loneliness as one avenue toward promoting resilience and mental well-being and reducing suicidality among autistic adults. -The link from social engagement and autism features to social anxiety and depression symptoms could be mostly explained by loneliness. -More social contact was related to less social and family loneliness and less social anxiety but was not related to depression.
I. C. Smith et al.	2019a	USA	*n* = 224 autistic participants (aged 18–27; 35 females; zero ID indicated).	To examine the role of anxiety symptoms in quality of life among young autistic adults.	- Anxiety symptoms: SCARED. - ASD symptoms: SRS-2S-2. - QoL: WHOQOL-BREF.	- 48% of adults with ASD exceeded clinical cutoffs for anxiety. - Anxiety moderated the relationship between ASD severity and the social relations domain of quality of life such that ASD severity predicted quality of life only among individuals with low levels of anxiety.
S. J. Smith et al.	2019b	UK	*n* = 20 autistic individuals (aged 18-55; no gender indicated, IQ range was identified as within the mild to borderline range (55–85)).	To explore perceptions of quality of life (QoL) in population with a dual diagnosis of learning disability and autism.	- QoL: PWI-ID; COMQOL-ID.	- Autistic individuals with intellectual disabilities have more negative perceptions of QoL than previously expected, with an emphasis on the complexity of their well-being experiences influenced by social interactions and levels of resilience and stress.

Table 1. Characteristics of the studies included in the systematic review (cont)

Author	Year	Country	Sample	Objectives	Variables and Measures	Results
Song et al.	2021	USA	*n* = 816 autistic adults (aged 18–72; 246 females, 166 with ID)	To provide a comprehensive understanding of participation among autistic adults, including the factors that influence their engagement in various activities and the potential for subgroup classification to inform targeted interventions and support.	- Community Participation: TUCP. - Sociodemographic Characteristics. - Clinical and Health Variables: sum score of functional impairments.	- Latent Class Analysis resulted in a good-fitting four class solution: Low Importance of Participation (33%); High Importance-Low Participation (16%); High Importance-Moderate Participation (22%); High Importance-High Participation (29%). - Autistic adults in the Low Importance group were more likely to have fewer years of education.
Stacey et al.	2018	Australia	*n* = 145 autistic (aged 25-85; 79 females, zero ID) and *n* = 104 neurotypical adults aged 25-85; 81 females, zero ID)	-To understand the leisure activities and satisfaction levels of autistic adults compared to their neurotypical counterparts. -To explore the potential impact of various factors on leisure satisfaction and its relationship with mental health.	- Leisure activity: LSS. - ASD features: AQ-S. - Health: PHQ. - Anxiety: GAD-D. - Socio-economic variables: SEIFA IRSD.	- Autistic adults reported varying leisure activity participation frequencies compared to neurotypical adults. - Negative associations between leisure satisfaction and other variables, including depression, anxiety, and autistic traits. - Among autistic adults, younger age and lower depression levels were associated with higher leisure satisfaction, while there were no significant associations between leisure satisfaction and anxiety, gender, socioeconomic status, or autistic traits.
Taylor et al.	2023	UK	*n* = 138 autistic people (aged 18-63; 69 females, no ID indicated) and *n* = 138 non-autistic adults (aged 18-60; 70 females, no ID indicated).	To study the strengths of autistic individuals, their awareness and utilization of these strengths, and the potential benefits of incorporating strengths-based approaches to improve well-being and mental health outcomes in the autistic population.	- Autism-related psychological strengths: 25-item scale with a 7-point response scale. - Strengths knowledge: 8-item scale using a 7-point response scale. - Strengths use: 14-item scale with a 7-point response scale. - Autistic traits: ASQ-50. - General cognitive ability: ICAR. - QoL: WHOQOL-BREF. - Subjective well-being: composite of life satisfaction, positive affect, and negative affect. - Mental health: DASS-21.	- Autistic individuals had fewer autism-related psychological strengths but recognized patterns more. - Strengths knowledge and use were lower in the autistic group. -Strengths knowledge predicted better psychological quality of life. -Strengths use predicted better quality of life in all domains, higher subjective well-being, and fewer mental health symptoms, while autism predicted the opposite. -Within the autistic group, strengths use positively influenced autism-specific quality of life, irrespective of autism severity.
Thiel et al.	2024	Germany	*n* = 86 autistic adults (aged 18-67; 21 females; zero ID) and *n* = 87 non-autistic adults (aged 18-70; 28 females; zero ID).	To examine how depressive and anxious symptoms affect the quality of life (QoL) in autistic adults compared to typically developing adults.	- Depression and anxiety: German version of HADS. - General QoL: WHO-QOL-BREF. - Autism-specific QoL: ASQOL (8 core items + 1 identity item).	- AS adults reported significantly lower QoL across all WHOQOL-BREF domains and ASQoL compared to TD adults (all $p < 0.001$). - Depression and anxiety were more frequent and severe in the AS group. - Depression had the strongest negative association with QoL in both groups.

Table 1. Characteristics of the studies included in the systematic review (cont)

Author	Year	Country	Sample	Objectives	Variables and Measures	Results
Williams and Gotham	2022	USA	*n* = 290 autistic young adults (aged 18–26; 178 females; no IQ indicated).	To assess the prevalence, impact, and clinical correlates of fourteen commonly reported somatic symptoms.	- Somatic symptoms: PHQ. - Autistic traits: SRS-2S-2. - Symptoms of depression: BDI. - Symptoms of anxiety: GAD-7. - QoL: WHOQOL-BREF.	-Both individual symptoms and total symptom burden were related to higher levels of depression, anxiety, and autistic traits, along with lower quality of life. -Women: higher somatic symptom burden, more severe symptoms of anxiety and depression, higher levels of autistic traits, and lower overall QoL. -After accounting for levels of anxiety, depression, and autistic traits, total somatic burden did not significantly predict subjective quality of life in the current sample. -Consideration of somatic symptoms is warranted when investigating the health status of individuals on the autism spectrum.
Yarar et al.	2022	UK	*n* = 136 participants: *n* = 79 with a formal diagnosis of autism (aged 21–71; gender not indicated; zero ID) and *n* = 57 non-autistic controls (aged 18–74; gender not indicated; zero ID).	To investigate potential age-related effects on autism symptoms, self-reported mental health, and QoL in younger and older autistic adults compared to a non-autistic control group.	- Autism Symptoms: Module 4 of the ADOS-2; SRS-2S-2. - Intellectual Ability: WASI-II. - Demographic Information: CSRI. - Self-reported Mental Health Symptoms: OCI-R; BAI; BDI; PHQ. - Self-reported ADHD: ASRS-v1.1. - Self-reported QoL: WHO-QOL-BREF.	- There were no significant age effects on autism symptoms or on most self-rated mental health symptoms. - Significantly more autistic adults in the younger versus older group scored above the clinical threshold for anxiety, somatoform disorders and eating disorders. - Older autistic adults rated social QoL as significantly better than younger autistic adults. - Self-reported QoL was best predicted by self-ratings of severity of depressive symptoms in both groups. - Self-reported mental health difficulties were common in the autism group, with a substantial proportion of both age groups scoring above the suggested clinical cutoff scores for depression, OCD and ADHD.

Note. ADHD = Attention-Deficit/Hyperactivity Disorder; ADOS-2 = Autism Diagnostic Observation Schedule-2; AQ = Autism Quotient; AQ-10 = Autism Quotient-10; AQ-Short = Abridged Version of the Autism Spectrum Quotient; ASQ-50 = Autism-Spectrum Quotient; ASQOL = ASD specific quality of life; ASRS-v1.1 = ADHD-Self-Report Scale Symptom Checklist; BAI = Beck Anxiety Inventory; BDI = Beck Depression Inventory; COMQOL-ID = Comprehensive Quality of Life Scale –intellectual/cognitive disability; CSRI = Client Service Receipt Inventory; DASS-21 = Depression Anxiety and Stress Scale; DSM-5-DAS = DSM-5-Dimensional Anxiety Scale; DSSI = Duke Social Support Index; FQ = Friendship Questionnaire; GAD-7 = Generalised Anxiety Disorder – 7; GAD-D = Generalised Anxiety Disorder – Adult; HADS = Hospital Anxiety and Depression Scale; ICAR = International Cognitive Ability Resource; ID = Intellectual Disability; ISEL-12 = Interpersonal Support Evaluation List-12; LSAS = The self-report version of the Leibowitz Social Anxiety Scale; LSS = Leisure satisfaction scale; MSQSF = Minnesota Satisfaction Questionnaire–Short Form; OCD = Obsessive Compulsive Disorder; OCI-R = Obsessive-Compulsive Inventory-Revised; PHQ = Patient Health Questionnaire; PWI-A = Personal Wellbeing Index-Adult; PWI-ID = Personal Wellbeing Index – Intellectual Disability; RSE = Rosenberg Self-Esteem Scale; SCARED = Screen for anxiety and related emotional disorders; SEIFA IRSD = Socio-Economic Indexes for Area Index of Relative Socio-Economic Disadvantage; SELSA = The Social and Emotional Loneliness Scale for Adults; SPIN = The Social Phobia Inventory; SRS-2S-2 = The social responsiveness scale, second edition; SWLS = Satisfaction with Life Scale; TAS-20 = Toronto Alexithymia Scale; TUCP = Temple University Community Participation; ULS-8 = University of California, Los Angeles Loneliness Scale; URCS = Unidimensional Relationship Closeness Scale; W-ADL = Waisman Activities of Daily Living; WASI-II = The Wechsler Abbreviated Scales of Intelligence-Second Edition; WEMWBS = Warwick-Edinburgh Mental Well-being Scale; WHOQOL-BREF = World Health Organization Quality of Life Instrument – Brief.

affecting multiple dimensions, including physical, psychological, social, and environmental domains, as well as autism-specific aspects such as sensory overload and access to supportive services.

In general, the results apply to the collective of adults within the spectrum, regardless of gender. However, some studies included in the review emphasize the greater manifestation of internalizing symptoms in adult autistic women compared to men (Morales et al., 2022; Murray et al., 2019; Williams & Gotham, 2022), risking presenting a lower QoL than men.

Also noteworthy are studies that emphasize age as a risk factor, indicating that younger adults are more at risk of experiencing internalizing psychopathological symptoms (Murray et al., 2019; Yarar et al., 2022) and, therefore, showing a detriment in their quality of life. Although the results are not consistent. For example, Yarar et al. (2022), while emphasizing that young people present more symptoms of mental health-related difficulties, indicate that this factor does not significantly impact QoL.

Overall, it is evident that internalizing symptoms of anxiety and depression negatively and significantly impact the QoL of adults within the spectrum, contributing to a sometimes-negative assessment of QoL domains. However, the fact that some studies suggest that internalizing symptoms do not have an additional negative effect on the QoL and the perceived well-being of autistic adults (Morales et al., 2022) raises questions about the extent to which internalizing symptoms are a determining factor that influences QoL negatively with some exclusivity.

To what extent do anxiety and depression serve as determinants of the overall well-being of autistic adults?

The presence of internalized symptoms, such as anxiety or depression, negatively affects the QoL of people within the autism spectrum. The works presented here argue for this (e.g. Charlton et al., 2023; Mason & Happé, 2022; Mason et al., 2019; Morales et al., 2022; Murray et al., 2019; Thiel et al., 2024; Williams & Gotham, 2022; Yarar et al., 2022). Specifically, some studies have found depressive symptoms to be responsible for the worsening levels of well-being among autistic people (Mason & Happé, 2022; Thiel et al., 2024; Yarar et al., 2022). However, it seems that their presence does not necessarily have to be determinant or exclusive in a worse QoL (Smith et al., 2019a; Smith et al., 2019b). Morales et al. (2022) indicate that in the autistic population, it is the autistic symptomatology and its severity that determine the decrease in QoL levels. Therefore, the additional presence of internalizing symptoms does not represent a decisive decrease in perceived well-being, although it does have an impact on it. Consistent with other studies, Thiel et al. (2024) emphasize that depressive symptoms are the strongest determinant negatively affecting overall QoL in autistic adults. Their findings indicate that depression has a more pervasive and significant influence compared to anxiety, highlighting the importance of prioritizing the diagnosis and treatment of depression to enhance QoL outcomes.

In this sense, several of the studies reviewed point to other factors that are sometimes assumed to be variables that are even causally related to the presence or appearance of anxiety and depression symptoms in this population (Mason et al., 2019; Morales et al., 2022; Mazurek, 2014; Schiltz et al., 2020). The work of Mason et al. (2019) links problems in finding employment to the emergence of internalizing symptoms and, consequently, to poorer well-being. Similarly, Mazurek (2014) and Schiltz et al. (2020) highlight the important role of loneliness in QoL. High levels of loneliness are related to a worsening of QoL and, in addition, to the development of internalizing symptoms which, in turn, impact the well-being of the autistic person. Another group of authors (Benevides et al., 2020a; Hedley et al., 2019; Song et al., 2021; Stacey et al., 2018; Taylor et al., 2023) found a few factors with a greater weight on the QoL of autistic populations than internalizing symptoms. Although these variables will be described in more detail in the following section, we will mention some of the variables highlighted in this research. Among them, Benevides et al. (2020a) discuss the impact of social barriers on QoL. Hedley et al. (2019) and Taylor et al. (2023) relate variables related to self-awareness to well-being, i.e. knowing how to enjoy and with what. In this line, Charlton et al. (2023) found that social support contributes significantly to the QoL of autistic adults after accounting for demographic factors and depression. Song et al. (2021) highlight the role of social participation in levels of well-being, while Stacey et al. (2018) discuss participation in leisure and free time activities.

In summary, we can say that although the presence of anxious or depressive symptoms seems to affect the well-being of autistic people, it is not the only variable that worsens well-being, nor is it a determining factor, at least in isolation, in all cases. The symptoms of autistic disorders themselves have been identified as more important determinants of well-being. In some cases, it is the presence of other variables, such as loneliness, which, together with internalizing symptoms, affect QoL levels. Other studies have identified that it is

another variable, for example, job search, that causes internalizing symptoms to appear, thus worsening QoL.

Beyond anxiety and depression, what other factors contribute significantly to the QoL in autistic adults?

Beyond anxiety and depression, a range of diverse factors emerge as significant contributors to the Quality of Life (QoL) in autistic adults as revealed by several studies included in this review (Morales et al., 2022; Smith et al., 2019a; Smith et al., 2019b; Williams & Gotham, 2022). Firstly, the role of psychopathologies other than anxiety and depression have been associated with a worse QoL in this group. Among them, is autistic symptomatology itself. Some of the reviewed works (Morales et al., 2022; Smith et al., 2019a; Smith et al., 2019b; Williams & Gotham, 2022) point out that the fact of having autism already puts your well-being at high risk, regardless of the presence of comorbidity. The role of intellectual disability has also been investigated, concluding that its presence does not directly influence QoL. However, autistic people with ID tend to have lower social participation and fewer social relationships, leading them to develop more anxious-depressive symptoms, which directly affect their well-being (Smith et al., 2019b; Song et al., 2021; Yarar et al., 2022).

Finally, the impact of trauma and post-traumatic stress disorder (PTSD) on mental health outcomes is a critical concern that has also been investigated among the selected articles. Research by Benevides et al. (2020a) underscores the need for trauma-informed care and the development of indicators to identify PTSD within the autistic population. Research by Charlton et al. (2022) points to additional influential factors, including demographic variables. The findings suggest that age, sex assigned at birth, and the number of health conditions have significant roles in shaping QoL. The study by Mason et al. (2021) illuminates the unique challenges faced by autistic women. On the other hand, social variables have also been linked to a worse quality of life and the presence of internalizing symptoms in autism. These include the presence of social barriers (Benevides et al., 2020a); the quality and quantity of social relationships (Morales et al., 2022), social participation (Morales et al., 2022; Song et al., 2021), loneliness (Mazurek, 2014; Schiltz et al., 2020) and participation in leisure and recreational activities (Stacey et al., 2018). Mazurek's study (2014) underscores the pivotal role of loneliness in influencing emotional well-being, with implications for depression, anxiety, life satisfaction, and self-esteem. Social isolation, stigma, and discrimination emerge as pervasive challenges, affecting both mental health and overall well-being. Benevides et al. (2020a) highlights the adverse consequences of marginalization and emphasizes the positive effects of radical inclusion and social movement participation.

In this sense, social support is another pivotal factor, with various aspects impacting different QoL subscales. Subjective support, social interactions, and instrumental support play distinct roles in Physical, Psychological, Social, Environmental, and Autism-specific QoL (Charlton et al., 2022). Social support was significantly associated with each aspect of QoL, even after accounting for demographic, health and mental health factors. Thiel et al. (2024), despite primarily focusing on depression and anxiety, also highlighted autism-specific QoL dimensions, such as sensory sensitivities and barriers in accessing services. These dimensions, although closely linked to internalizing psychopathology, represent distinct areas that significantly influence QoL and should be considered separately in interventions aimed at enhancing overall well-being. Furthermore, research by Hedley et al. (2019) examines the relationship between job satisfaction and mental health/well-being outcomes.

Another study suggests that alexithymia may have a smaller impact on QoL compared to depression, which emerged as a strong negative predictor of various QoL domains. The relationship between alexithymia, depression, anxiety, and QoL is complex and multifaceted (Mason & Happé, 2019).

Self-knowledge is another issue that has appeared linked to QoL in this review. Hedley et al. (2019) and Taylor et al. (2023) have found that self-knowledge related to knowing what you like, how to enjoy and what makes you enjoy is an important variable in the comorbid psychopathology-quality of life relationship.

The research by Smith et al. (2019b) indicates the importance of addressing stress and adversity, considering the unique perspectives and coping mechanisms of autistic individuals with a learning disability to manage stress effectively. Song et al.'s paper (2021) emphasizes the intricate relationship between somatic symptoms, anxiety, depression, and mental well-being, underlining the need to address these interrelated factors to improve QoL. However, it doesn't specifically delve into factors contributing to the quality of life (QoL) beyond anxiety and depression. Furthermore, studies by Yarar et al. (2019), Taylor et al. (2017) and Williams and Gotham (2017) emphasize various dimensions, including social relationships, independence, family support, and environmental factors that contribute to a comprehensive understanding of QoL in autistic adults.

In conclusion, the collective findings from these studies reveal a complex web of factors influencing the

QoL of autistic adults, emphasizing the need for tailored research and interventions that address their unique needs, challenges, and strengths, ultimately striving for a more inclusive and supportive environment that enhances their overall well-being.

Qualitative Evaluation of the Studies

According to Higgins et al. (2011), to know the risk of bias of each study, it is convenient to evaluate each of the items proposed by the Cochrane manual. These items are random sequence generation, allocation concealment, blinding of participants, blinding of outcome assessment, incomplete outcome data, selective reporting, and other bias.

It should be mentioned that certain risk indicators cannot be assessed in this case due to the methodological characteristics of the papers included in the review. Therefore, we will mention only those that do apply. Results of these evaluations can be seen in Table 2.

To determine the scores, each reviewer individually scored each item for each study. The final score was based on the criterion of greatest agreement. In cases of disagreement, verbal agreements were reached to determine the final score. The domains of "incomplete outcome data" and "selective reporting" have been assessed, in most cases, with a low risk of bias, since the results offered by the studies reflected what was stated in the hypotheses, even if they were different from those expected. However, some studies (Hedley et al., 2019; Smith et al., 2019a; Yarar et al., 2022) did not clarify what they expected to find.

The item "other bias" has been assessed as high risk in all the studies since no randomized sampling was done, working all of them with incidental samples. However, all have tried to work with large samples.

The remaining studies present an uncleared risk. Yarar et al. (2022) research do not indicate the number of autistic participants based on gender. In addition, some works such as those of Mason & Happé (2022); Murray et al. (2019); Morales et al. (2022), Yarar et al. (2022) do not use equivalent samples between the experimental and control groups.

Discussion

This review has included 17 articles focused on QoL and psychopathological comorbidity in the autistic adult

Table 2. Qualitative evaluation of the revised studies

	Random sequence generation	Allocation concealment	Blinding of participants	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other bias
Benevides et al., 2020	NA	NA	NA	NC	L	L	H
Charlton et al., 2023	NA	NA	NA	NC	L	L	H
Hedley et al., 2019	NA	NA	NA	NC	NC	NC	H
Mason and Happé, 2022	NC	NC	NC	NC	L	L	H
Mason et al., 2019	NC	NC	NC	NC	L	L	H
Mazurek, 2014	NA	NA	NA	NC	L	L	H
Morales et al., 2022	NC	NC	NC	NC	L	L	H
Murray et al., 2019	NA	NA	NA	NC	L	L	H
Schiltz et al., 2020	NA	NA	NA	NC	L	L	H
I. C. Smith et al., 2019a	NA	NA	NA	NC	L	NC	H
S. J. Smith et al. 2019b	NA	NA	NA	NC	L	L	H
Song et al., 2021	NA	NA	NA	NC	L	L	H
Stacey et al., 2018	NC	NC	NC	NC	L	L	H
Taylor et al., 2023	NC	NC	NC	NC	L	L	H
Thiel et al., 2024	L	L	NC	NC	L	L	H
Williams & Gotham, 2022	NA	NA	NA	NC	L	L	H
Yarar et al., 2022	L	L	NC	NC	NC	L	H

Note. H = high; NC = not clear; L = low; NA = Not applicable.

population. The research reviewed in this paper has met the established inclusion criteria, is methodologically diverse, and follows different objectives. In total, the review includes 3645 autistic adults aged between 17 and 72. Mostly of the participants were men but there was a high representation of females (n = 1861). However, this is not the case for ID, since only 188 participants had a comorbid ID. This review aims to expand on previous systematic reviews of QoL in autistic adults and, in addition, to understand the role of comorbid psychopathology in this relationship, given that, to the best of our knowledge, there are no reviews that address all three variables together in recent years.

The different reviewed studies, as well as the literature on the subject, show that there is a relationship between QoL and the presence of internalizing symptomatology. Both the presence of symptomatology related to anxiety and depression are associated with lower quality of life, especially in young adults and women (Morales et al., 2022; Murray et al., 2019; Thiel et al., 2024; Williams & Gotham, 2022; Yarar et al., 2022). Previous work (MacKenzie et al., 2024; Sáez-Suanes & Álvarez-Couto, 2022) has already pointed to the effect of internalizing pathologies on the well-being and QoL of autistic adults. The rates of both symptomatologies are high in autistic adults (Murray et al., 2019); however, it seems that depression has a greater impact on the decrease in self-perceived QoL than anxiety. While some studies indicate that anxious symptomatology does not influence the social domain of QoL (Charlton et al., 2023; Mason et al., 2019; Morales et al., 2022; Williams & Gotham, 2022), depressive symptomatology does seem to negatively influence all domains (Charlton et al., 2023; Mason & Happé, 2022; Mason et al., 2019; Morales et al., 2022; Thiel et al., 2024; Williams & Gotham, 2022). However, attempting to make distinctions about which symptomatology affects more or less may not make sense, especially considering studies that suggest anxious and depressive symptomatology are different manifestations of the same condition (Groen et al., 2020).

Although the presence of this symptomatology is not a definitive or exclusive factor for the decrease in QoL in autistic adults, there are variables related to its occurrence that led to a decline in QoL. The social domain and variables related to social relationships seem to play a crucial role in QoL. Specifically, maintaining friendships, which is stressful for many autistic adults (Mason et al., 2019), leads to increased anxious symptomatology and even the development of disorders such as social anxiety disorder (Smith et al., 2019a), negatively impacting QoL. Likewise, the variable of loneliness is considered key to the development and maintenance of anxious (Schiltz et al., 2020) and depressive symptomatology (Mazurek et al., 2014), and therefore, it should be considered relevant when discussing the QoL of autistic individuals. This result is very interesting, especially considering that many people still believe the assertion that autistic individuals prefer solitude or spending most of their time alone (Grace et al., 2022). Studies like those of Benevides et al. (2020a), Morales et al. (2022), Song et al. (2021), and Stacey et al. (2018) demonstrate the falsehood of this claim, as they indicate that social barriers, lack of social participation, and lack of engagement in leisure and recreational activities are factors contributing to the decrease in QoL for autistic individuals. Previous systematic reviews such as Cameron et al. (2021), Chiang and Wineman (2014) or Tobin et al. (2014) point to the importance of leisure and social participation in the QoL of adults within the spectrum. Therefore, interventions focused on improving social skills and relationships management seem to offer many benefits for the QoL of autistic adults.

Also, this review highlights various personal and social factors beyond social barriers, social support and loneliness that significantly contribute to the QoL in adults on the autism spectrum. For example, Hedley et al. (2019) and Taylor et al. (2023) point to the importance of self-knowledge in the assessment of self-perceived QoL. Specifically, they highlight self-knowledge about what brings enjoyment and satisfaction as a variable that positively influences QoL. In this sense, it is interesting to include this variable in different intervention programs focused on improving the QoL of autistic adults.

Job satisfaction is another variable that has been highlighted as influential in the well-being of adults within the spectrum. Specifically, Mason et al. (2019) focus their study on how difficulties in finding a job negatively influence the QoL of autistic adults. Therefore, work and adult life skills training are posited as other variables to consider when discussing QoL in this population (Davies et al., 2024).

Another interesting factor is the existence of comorbid ID. Although few participants in this review met this dual diagnosis, some conclusions can be drawn. ID itself appears not to have a direct influence. Autistic adults with ID are at a higher risk of experiencing reduced social participation, fewer social relationships, and more internalizing symptomatology, which contributes to a decrease in their Quality of Life (QoL), rather than their IQ (Smith et al., 2019b; Song et al., 2021; Yarar et al., 2022). This conclusion is crucial, emphasizing the need to study and address the QoL of individuals with both autism and ID. However, these results have limitations,

as only the study by Song et al. (2021) and Smith et al. (2019b) included participants with ID proportionally, with only the latter focused entirely on participants with ID.

Along the same lines, the review has highlighted other psychopathological variables that impact on the QoL of autistic adults. First, autistic symptomatology in itself poses a risk for individuals to manifest a lower QoL. The review indicates that the presence of autism itself puts individuals at high risk for lower well-being, irrespective of comorbidities (Morales et al., 2022; Smith et al., 2019a; Smith et al., 2019b; Williams & Gotham, 2022). Understanding the specific aspects of autistic symptoms that influence QoL is crucial. For instance, alexithymia has been found to have an impact on QoL. Specifically, Mason & Happé (2022) study investigates its impact on QoL compared to depressive symptomatology, finding that difficulties in identifying and expressing emotions lead to lower QoL. This result offers a guide for the development of interventions related to QoL, highlighting the work on the identification and expression of emotions as a resource for the improvement of QoL in autistic adults. Likewise, literature has mentioned sensory sensitivities as a variable contributing to high rates of anxiety and distress in autistic population (Robertson & Simmons, 2013), thus negatively impacting the QoL of this population.

Also, symptomatology related to trauma and PTSD has also been pointed out as a psychopathological variable impacting on mental health (Benevides et al., 2020a). The study by Benevides et al. (2020a) reinforces the importance of knowing how this symptomatology concretely impacts autistic adults in order to offer an adequate and timely response for this population underscores the need for trauma-informed care and the development of indicators to identify PTSD within the autistic population. Therefore, being aware that this symptomatology negatively affects QoL is important when planning interventions.

Among other factors associated with QoL are demographic variables. This review notes that women suffer more internalizing symptoms (Morales et al., 2022; Murray et al., 2019; Williams & Gotham, 2022), so their overall well-being may be more compromised. In this sense, the work of Mason et al. (2021) deals with the daily challenges that autistic women experience in their daily lives, which entail more anxiety and depression and a poorer quality of life. Along these lines, many studies are currently aimed at investigating the group of autistic women, their symptoms and the consequences of masking in their lives. For example, the work of Sáez-Suanes et al. (2023a) on gender and anxiety demonstrated the important role of the female gender in emotional regulation and its link with anxiety in autism. Also, general results were found for anxiety and depression by Uljarević et al. (2020). In this regard, recent research on the camouflage of autistic women suggests that they may be exposed to increased distress, which may be poorly regulated and therefore more vulnerable to developing anxiety (Murray et al., 2019; Uljarević et al., 2020) worsening their QoL.

Age has also been investigated by papers in this review. For example, Yarar et al. (2022), show that young people present more symptoms of mental health-related difficulties, indicating that this factor does not significantly impact QoL. Other works, such as that of Sáez-Suanes et al. (2023b) found that males aged 30-49 years were the most vulnerable group for the development of depressive symptomatology. A slight trend for an increase in the severity of both anxiety and depression from adolescence to middle adulthood, and then a slight decline in older adulthood was found (Uljarević et al., 2020). Research on age and internalizing symptom development on the autistic spectrum does not provide conclusive results. It should be remembered that the spectrum is very broad and there is a diversity of conditions under the same diagnosis.

On balance, it appears that the presence of internalizing symptoms does not seem to be a complete determinant of autistic adults' levels of well-being. Sometimes symptoms appear as a consequence of another variable, such as looking for a job or being alone, and it is then that QoL is affected. Furthermore, it is difficult to isolate mental health because it is directly and inevitably related to other socio-demographic factors, as well as to the disorder itself.

However, this review contributes valuable insights into the QoL of autistic adults and the complex interplay of internalizing psychopathologies, such as anxiety and depression, in shaping their well-being. Several key contributions and updates emerge from the synthesis of the reviewed literature. Firstly, it is focused on adulthood. While existing research has historically concentrated on childhood and adolescence, this review addresses a notable gap by emphasizing the QoL of autistic adults. It acknowledges the scarcity of studies on adults, particularly those over 50, providing an updated and comprehensive exploration of this crucial life stage. Also, the synthesis of 16 reviewed articles underscores the nuanced impact of anxiety and depression on different domains of QoL, while emphasizes the significance of social and personal variables in relation to QoL in autistic adults. There is evidence over the need for comprehensive care to

address mental health issues and improve QoL in autistic adults (Chan & Doran, 2023). In this sense, the different variables highlighted in this study offer an answer to the need to know the most appropriate factors to take into account in the design and implementation of programs and projects focused on improving the quality of life of this population (Benevides et al., 2020b), considering, above all, the preferences of the participants (Hull et al., 2025; Skaletski et al., 2021).

All in all, this review contributes a nuanced understanding of the QoL of autistic adults, acknowledging the multifaceted nature of internalizing psychopathologies and their interaction with social, environmental, and individual factors, adding to the findings of previous studies that analyze psychopathological symptoms in autistic adults (Álvarez-Couto et al., 2024; Sáez-Suanes et al., 2023c). It provides updated insights that can inform psychoeducational practices and guide future research, fostering a holistic approach to enhancing the well-being of this unique population. The clinical world must understand the role of anxiety and depression in autism within the lives of these individuals. These symptoms reduce and worsen the QoL of people within the autism spectrum, thus they must be understood and addressed. Additionally, for all psychologists and educators working with autistic adults in institutions or residences, it's important to identify which variables make life easier for these individuals. They all must advocate for their well-being and design programs focused on the individuals and life projects that enhance their quality of life and reduce the onset of symptoms, such as anxiety and depression, that worsen it.

This review must be understood within its limitations. Firstly, in the included research, there is an under-representation of the people in the spectrum, as women, diverse gender people and, mainly, people with ID are. The main profile of the participants is male without an ID. The huge variability in the ages of the samples in the different studies makes it difficult to compare results between studies. Also, the non-random selection of participants is another of the obstacles encountered when generalizing the results to the whole spectrum. However, access to such a specific population is very complex. Regarding the limitations of the review, the limited number of articles that could be included because they met the inclusion criteria is noteworthy. The qualitative quality of the works included also presents some weaknesses. Most studies have a high risk of bias in different items, sometimes because they are not applicable in this type of research and sometimes because of limitations in the methodology.

Future research should explore QoL from an intersectional perspective, as well as the role of support services and programs that consider these variables by evaluating its effectiveness and identifying areas for improvement. Also, it would be useful to plan longitudinal studies to track the trajectories of individuals within the spectrum from adolescence into adulthood that could provide insights into the evolving challenges and opportunities they face over time in relation to their QoL.

To conclude, this study has found that autistic individuals present lower levels of QoL and more symptoms of anxiety and depression than their neurotypical counterparts. In general, studies have supported the idea that internalizing symptoms are associated with a poorer QoL in the autistic community. A direct relationship has been found between psychopathologies and QoL, and an indirect one through a series of factors related to both mental health and overall well-being. However, these conclusions must be understood within the framework of an autistic spectrum that encompasses profiles of very diverse individuals. Within the spectrum, there are groups of greater vulnerability such as women, individuals who feel lonely or have few social relationships and participation, which contributes to the development of anxious-depressive symptoms negatively impacting well-being levels.

Conflicts of interest

The authors have no conflicts of interest to disclose.

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