

Anxiety, Depression and Quality of Life in parents of children With Autism

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ABSTRACT:

Rearing a child with neurodevelopmental disorder such as autism is a stressful challenge for parents. It requires them to adopt further strategies in order to cope with this new situation. However, those strategies turn out to be scarce, insufficient or unsuitable leading to manifold backlashes on their quality of life (QoL) and their psychological status.

This is a descriptive cross-sectional study on 3 months period, conducted among parents of children with Autistic disorder, supported by four rehabilitation centers. Hamilton anxiety scale, Beck depression inventory and the Brief-Cope scale were used to assess their respective spheres. QoL was evaluated using the SF-36 in its Arabic version.

103 parents took part in the study. Anxious symptoms were present among 18.4 % of parents. Depression was noted in 65% of cases. 46.6% of parents had an impaired QoL. Coping strategies mainly used by parents are: acceptance, active coping, positive reframing and using emotional support, respectively in 83%, 78.6%, 68% and 56.3% of cases.

This study provides perspicacity on the actual psychological impacts of Autism on parents. A medical and social support is, therefore, crucial in order to help them cope with this disability.

KEYWORDS: Parents, Autistic disorder, Anxiety, Depression, Quality of life, Coping.

1. Introduction

Since Leo Kanner published his first paper "Autistic Disturbance of Affective Contact" identifying autistic children in 1943 [1], researches on autism has been multiplied. Recent studies have estimated that Autism Spectrum Disorder (ASD) prevalence was 14.7 per 1000, that's to say, 1 in 86 according to the Centers for Disease Control and Prevention (CDC, 2014) [2].

Although knowledge about autism increased sharply these last years, we cannot, yet, predict the future of a child suffering from this neurodevelopmental disorder. Most of them stay substantially dependent on their parents even in adulthood [3]. Autistic children, even when they are intellectually gifted and capable of academic performances, are prone to segregation from their peers as their demeanors differ. The educational treatment of those children, likely to make them evolve positively, both in their behavior and interactions with others and thus, optimizes their future quality of life, is missing for the great majority of them. Unfortunately, our current educational system is limited to the strict and symbolic recognition of the right to education and omits the right of access to a real educational treatment [4]. Therefore, parents are exhausted in order to seek adequate care solutions for their autistic children and strive to provide maximum help so that they appease their sense of despair and powerlessness to face the pain and distress they experience [5]. Indeed, the autistic pathology includes a dimension of violence, banning and onslaught to the connections and thoughts. This dimension could contaminate future psychic functioning of those living with autistic children especially their parents. For them, rearing a child with autistic disorder is a notably stressful experience and a daily challenge, also, social stigma has an important influence on the ordeal they go through and the lack of emotional reciprocity of the child doesn't make it any easier [6]. This daily stress relevant to the handicap of autistic children has a major impact on the lives of the entire family and triggers among those parents a series of distressing psychological reactions. In order to face this situation, they implement coping strategies [7].

In the present study, we sought to identify the sociodemographic characteristics of parents caring for autistic children, to estimate the prevalence of anxiety and depressive symptoms among these parents, to identify their coping strategies and to measure their quality of life (QoL).

2. Methods

2.1 Study design:

This was a transversal and descriptive study during a 3 month period from 01/04/2016 to 30/06/2016 conducted among parents of children with autistic disorder and supported by four rehabilitation centers.

2.2 Participants and procedure

Participants were parents of children with Autistic Spectrum Disorders. The inclusion criteria were: Diagnosis of autism in children, according to DSM-IV-TR [8], the absence of personal history among participants and prior agreement after information about the study aims. While the exclusion criteria were: Other Pervasive developmental disorder, personal history of a previous psychiatric follow-up among the participants.

Data were collected from parents with a pre-questionnaire with 30 items exploring the:

- **General parents' features:** age, gender, origin, marital status, parents' consanguinity, number of children in household, level of instruction, profession, socioeconomic level, social security, psychiatric family history, family history of suicide or suicide attempt, surgical personal history, personal history of addictive behavior.
- **Children clinical features:** actual age, age of disorder onset, age at the first consultation, age at the admission to the center, evolution period of the disorder, other illnesses and other diseases among siblings.
- **Data concerning the child care:** total number of hospitalizations, prescribed medications.

Informed consent was obtained and all data were collected anonymously in accordance with the ethical standards of the responsible committee on human experimentation and with the Declaration of Helsinki as revised in 2000.

2.3 Measures:

2.3.1 Anxiety

Anxiety was measured using HAMILTON Anxiety scale (HAM-A). The HAM-A was presented by Hamilton in 1959 as an instrument to evaluate, quantitatively, the neurotic anxiety. It was translated to French by P.Pichot [9]. Its aptitude to distinguish different degrees of anxiety's gravity is satisfactory. This scale is composed of 14 items exploring psychic signs, muscular and visceral signs of anxiety, as well as cognitive and sleeps disorders [9]. Each item is rated from 0 to 4. Score 4 corresponds to invalidating symptomatology. The sum of all items identifies the presence or absence of an anxious symptomatology.

- ✓ <20: No Anxiety
- ✓ >20: Anxiety confirmed

2.3.2 Depression

For the assessment of depressive symptoms, we used BECK Depressive Inventory (BDI13) measuring the severity of depression. It was developed by Beck in 1972 [10]. Several versions exist: the original version includes 21 items, an extended version with 25 items was proposed by P.Pichot [10]. BDI 13 is a 13-item self-reported instrument, measuring multiple symptoms: Sadness, pessimism, past failure, loss of pleasure, guilty feelings, self-dislike, suicidal tendency, social isolation, indecisiveness, negative perception of self-image, difficulties at work, fatigue and anorexia. Rated on a 4-point Likert-type scale ranging from 0 to 3, based on the severity of each item. It is widely used as an indicator of the severity of depression [10], but not as a diagnostic tool. A total score between:

- ✓ 0 and 4: No depression
- ✓ 4 and 7: Mild state of depression
- ✓ 8 and 15: average to moderate state of depression
- ✓ 16 or higher: severe state of depression

2.3.3 Quality of life

Quality of life assessment was realized using the SF-36 in its literary Arabic version [11]. It is a 36-item, short form survey which measures Quality of Life (QoL) across eight domains, which are both physically and emotionally based, developed in "the Medical Outcomes Study" (MOS) [12, 13].

- Domain 1 (D1) - Physical functioning

Explored within 10 items, this domain evaluates patient capacity to perform physical activities.

- Domain 2 (D2) - Role limitations due to physical health problems

In 4 items, this concept appraises limitations of quotidian activities relevant to the physical state during the last 4 weeks.

- Domain 3 (D3) – Bodily pain

Composed of 6 items to evaluate patients' health status during the past year.

- Domain 4 (D4) – General health perceptions

It explores in 6 items patients' health during the last year.

- Domain 5 (D5) – Vitality

In 3 items, this domain assess dynamism and energy or, on the contrary, feeling of fatigue and exhaustion.

➤ Domain 6 (D6) –Social functioning

Explored within 2 items, this scale explores the impact of physical and emotional health on the social life and patients' relationships with family, friends and neighbors.

➤ Domain 7 (D7) – Role limitations due to personal or emotional problems

In 3 items, this domain provides an insight on the impact of the emotional state on daily activities.

➤ Domain 8 (D8) –Emotional well-being

Explored within 5 items, it evaluates patients' mood and their anxious and depressive troubles during the past 4 weeks.

In summary, for each of the eight domains that the SF36 measures, an aggregate score is produced. The scores range from 0 (lowest or worst possible level of functioning) to 100 (highest or best possible level of functioning). Indeed, higher the scores on the SF-36 indicate better QoL. The overall mean score was obtained by averaging the responses to 36 items. By referring to the threshold value of Léan, it is assumed that a score <66.7 means impaired QoL [14]. For a better interpretation of results, two summary measures of physical (PCS) and mental (MCS) health are constructed from the eight scales according to Ware's study [15] (Figure 1).

2.3.4 Coping strategies

The BRIEF-Cope scale was used to examine coping strategies used by parents. In effect, coping means to invest own conscious effort, to solve personal and interpersonal problems, in order to try to master, minimize or tolerate stress and conflict, like such as illness, loss of a loved one, disasters. Thus, when the disease appears, the study of coping strategies enables a better understanding of the personal management of the situation and the implementation of interventions to promote a functional response to the situation [16]. The Brief-Cope is indited of 14 subscales, comprised of two items each. On a 4-point scale, parents rated the strategies they tended to use when facing up to uphill situations. These scales include: Active Coping, Planning, Positive Reframing, Acceptance, Humor, Religion, Using Emotional Support, Using Instrumental Support, Self-Distraction, Denial, Venting, Substance Use, Behavioral Disengagement and Self-Blame. The 2 main coping strategies are: Problem-Focused strategies (Active coping, planning, using instrumental support, positive reframing) [16] which is aimed at changing or eliminating the source of the stress, and Emotion-focused strategies (which include Using emotional support, venting, acceptance, denial, self-blame, humor, religion, self-distraction, substance use, behavioral disengagement) [16], whose purpose is to manage the emotions that accompany the perception of stress.

2.4 Statistical analysis

Data were entered into a computer-compatible tool with Excel software, and analyzes were performed using SPSS 20.0 software for windows. We calculated simple frequencies and relative frequencies (percentages) for categorical variables, averages and standard deviations (SDs) for quantitative variables.

3. Results

Descriptive analysis

One hundred and three parents of autistic children, who met the inclusion and exclusion criteria, have participated in this study.

3.1 Characteristics of the participants

3.1.1 Sociodemographic characteristics

The parents' age ranged from 25 to 52 years with a mean of 38 years. The study population was divided into 38 men (36.9%) and 65 women (63.1%), that's to say, a sex ratio (M / F) of 0.58. Most of the parents were from urban origins (87.4%) and almost all of them were married (98.1%). The number of children in household ranged from 1 to 6 with an average of 2.6. While the level of education was high in 76.7% of parents, 35.9% of them were jobless. 64.1% of our population, contrariwise, had a job. The socioeconomic level was average in 84.5% of cases. Addictive behaviors were present in 16.5% of cases, including smoking accounted for 88.2%. (Table I)

3.1.2 Antecedents

Family psychiatric history was noted in 19.4% of cases, including depressive disorders which were found in 50% of these latter. Suicide and suicide attempts had been reported in, respectively, 6.8 and 61.2% of cases. (Table I)

3.2 Sociodemographic and clinical features of children

Current age of children averaged between 2 and 14 years with a mean of 5.9 years. Age at onset of the disorder varied from 8 to 96 months, the average was 27.4 months. Age at the first consultation fluctuated from 12 to 96 months. Age at the admission in the center ranged from 24 to 108 months, the median was 45.2 months. Evolution period of the disorder varied from 9 to 120 months with a mean of 41.2 months. 16.5% of children were hospitalized. 11.6% of children received drug treatment, including Omega3 and valproic acid. Other diseases were reported in 4.8% of cases of which 40% were repeated tonsillitis. Siblings' diseases were found in 2.9% of cases. (Table I)

3.3 Assessment of anxiety

Almost 1/5 of the parents (18.4%) had a score greater than 20 denoting the presence of anxiety symptoms.

3.4 Assessment of depression

Depression was noted in 65% of parents, with a mean intensity in 33% of cases and a severe one in 1.9% of cases. (Table II)

3.5 Measurement of quality of life

The overall mean score to the SF-36 of all patients varied from 10.1 to 95.3 with an average of 65.6. The distribution of this score, revealed that 46.6% of the parents had scores below the threshold value of Lean (66.7), attesting an impaired QoL.

The average score calculated for each dimension, evinced that the alteration was, in decreasing order of importance, about the following domains: 47.8% for vitality (D5), 53.6% for emotional well-being (D8), 57.2% for role limitations due to personal or emotional problems (D7), 61.6% for role limitations due to physical health problems (D2), 61.8% for general health perceptions (D4), 62.8% for social functioning (D6), 73.7% for bodily pain (D3) and 84.1% for physical functioning (D1). Bodily pain and physical functioning were the only unaffected domains. The mental component was affected with a score of 55.3% while the physical component was unaffected and had a score of 70.3%. (Figure 1)

3.6 Coping strategies

The study of coping strategies by the Brief-Cope scale allowed to behold that the strategies most used by parents were in descending order: acceptance (83.5%), active coping (78.6%), positive reframing, using emotional support (56.3%), religion and using instrumental support (50.5%), planning (33%), self-distraction (32%), self-

blame and venting (22.3%), Humor (17.5%), denial and behavioral disengagement (11.7%) and substance use (2.9%). (Figure 2)

4. Discussion

The autistic disorder generates a major handicap to the child and induces among parents consternation and disarray. These parents present a particularly high risk of social isolation, distress and even depression [17]. They are more anxious and have a more negative perception of their parental skills [18]. Add to this, stigma and insecurity regarding the future of their child [19]. It is, therefore, easy to deduce that over time parents are weakened and do not feel able to cope with their everyday life. The lack of evidence published on this subject prompted us to focus on the experience of parents of children with autism, and how they undergo their children disability. Whence, the purpose of our present study was to investigate the psycho-affective impacts of autism on these parents as well as to identify their coping strategies and to appreciate their quality of life.

Concerning methods, our sample, being homogeneous, including only the children diagnosed with autistic disorder, according to the criteria of DSM-IV-TR, is similar to that of Dardas, and differ with those of Ben Thabet et al. [20], Of Benson [21], whose samples were heterogeneous (Autism, Asperger syndrome, mental handicap, ...). This allows us to have a better sensitivity as we focused on the perceived repercussions only in the parents of children with autism. To evaluate depression, we used BECK Depressive Inventory (BDI) because of its relevance and its effectiveness in measuring the severity of the depression. Other scales were used, such as Center for Epidemiologic Studies Depression Scale (CES-D) in Meltzer Lisa's study [22]. Anxiety was evaluated using HAMILTON Anxiety Scale (HAM-A), else studies, just as Ozturk et al. [23], used The symptom Checklist-90-Revised (SCL-90-R) to assess anxious and depressive symptoms in parents. QoL was measured using the SF-36, considering its advantages and its relevance.

In terms of demographics, the female predominance observed in our study is consistent with most studies evaluating the impact of autism on both parents [24]. This is explained by the fact that mothers are frequently reported as the main support and the primary care givers of their children and that they are the ones who mainly manage daily life. Anent marital status, the majority of the parents in our sample were married. Those results are consistent with those of Lee et al. and Bourke-Taylor et al. [25, 26]. Given the upheaval caused by the presence of an autistic child in the family, it can be assumed that the couple is, in some cases, threatened. Consistent with many studies, most of our parents had a high level of education. A possible annotation of the absence of an occupational activity identified in most studies [27] may be the daily demands faced by parents of autistic children, such as ensuring an adequate education, access to the necessary medical care, and a perpetual vigilance to watch them. As for the socio-economic level, it was average and comparable to the results of Montes et al. [28]. The majority of studies have shown that a high socio-economic level positively influences the social environment of parents as well as that of their children. The addictive behaviors were present in approximately 16% of cases. In this regard, Miles et al. [29] reported that children from high-alcohol households were more likely to have autistic disorders. Psychiatric family history was present in 19.4% of cases. A multicenter study (Sweden, Great Britain, Israel and North Carolina) concluded that a family history of schizophrenia and / or bipolar disorder may be a risk factor for autism to the next generation.[30]

Germane to sociodemographic features of children with Autism, the age was between 2 and 14 years old with an average of 5.9 years at the time of the study. Several studies have investigated the association between the age of the child with autism and its impact on parents. There are those who report that the parents of older children with ASD had a mediocre QoL compared to parents of young children [31]. 16.5% of children were hospitalized. According to Carbone et al. [32], 25% of children with ASD were hospitalized for behavioral disorders which ensure their safety and that of their family. Somatic comorbidities were reported in 4.8% of cases. 10.1% had epilepsy associated [36]. Gastrointestinal symptoms were also reported [33]. On the other hand, obesity was common in children with ASD in Kuwait [34]. In addition several studies have noted a significant presence of psychiatric symptoms in subjects suffering from ASD, mainly emotional disorders, attention deficit hyperactivity disorder and tics [35].

Regarding the impact on parents of children suffering from Autistic Spectrum Disorders (ASD), multiple studies have reported higher levels of depressive symptoms and psychological distress. These differences were found in these parents relatively to the parents of children with Down syndrome [36] and other types of developmental disorders or requiring special health care [37]. In our study, anxiety assessment noted that 18.4% of parents of autistic children had anxiety symptoms. Concerning the factors associated with anxiety, no correlation was found between the age of the parents and the symptoms of anxiety. Giallo et al. [38] reported that maternal stress did not depend on the age of the mothers of children with autism, a result that is similar to ours. Duarte et al. [39] studying stressors in mothers of autistic children concluded that being an elderly mother would be one of the factors contributing to significant psychological distress. A significant link between anxiety and gender has been reported. Among parents with anxiety symptoms, 89.5% were mothers. A result that is evident from the fact that many studies recognize a greater maternal commitment [40]. Other studies have shown that the stress experienced by mothers and fathers of children with autism depends on multiple factors, such as the severity of the disorder [41] as it is evident that the less the disorder is severe (absence of comorbidities, little unsuitable behaviors...), the less pessimistic the mother is and the more positive the relationship is [6]. Unlike these results, other studies reported no difference in anxiety scores between mothers and fathers of children with autism, and have even similar levels of stress [17, 20]. Another stressor and a predictive factor of anxiety among parents of children with autism is the level of instruction. In fact, the higher level of education, parents have, the less anxious they will be. This result is comparable to that of Samadi et al. [42] who concluded that parents with a university education have less emotional distress and better health. They explained that educated parents are more likely to know about their children's illness through reading books and accessing the Internet better than parents with low educational attainment [43]. Carr et al. [44] disclosed that African-American mothers with low educational attainment had significantly lower negative impacts. Their interpretation of this fact is that increased years of schooling among mothers of children with ASD may be associated with understanding the complexity of their children's illness and therefore, bring more disappointment and anxiety. In our study, a statistically significant connection was found between the absence of occupational activity and the presence of anxious symptoms among parents of children with autism. On this subject, Gary [30] reported that one of the consequences of autism on mothers was stopping their work. Indeed, looking after an autistic child makes family responsibilities and commitments more important and obliges mothers to give up their work. Some of them feel that this is unfair and make them more anxious. We found no interaction between socioeconomic levels and the presence or absence of anxiety among parents of children with autism, which is consistent with results found by Tung et al. [31] Otherwise; multiple studies have shown that parents with high socioeconomic status report fewer negative repercussions and a lower level of stress [45]. Montes et al. [28] published that raising a child with ASD greatly reduces family income. Concerning addictive behaviors, no significant relationship was retained. Few studies have shown co-occurrence between anxiety disorders of parents of children with ASD and alcoholism. In this study, a correlation was found between the presence of family psychiatric history and anxiety. Different researches accounted for a higher prevalence of psychiatric antecedents in family members of children with ASD, especially depression and bipolar disorders, compared to family members of children with other disabilities [46]. The majority of studies focused on identifying the genetic component binding between psychiatric history in the family, parents' mood disorders and the incidence of autism. Subsequently, the frequent occurrence of anxiety disorders in parents of autistic individuals may indicate that these disorders are only a milder genetic expression of autism [47]. In our study, the presence of anxiety symptoms was assessed amid parents of children with autism, according to the child's current age but no relationship was found. Davis et al. [48] focused on young (18-33 months) and newly diagnosed children with ASD and reported high levels of stress among their parents. This parental stress could be due to what was considered as a crisis of early adaptation to diagnosis. Moes et al. [49], On the other hand, showed that maternal stress increases as the child grows. (Table IV)

As for the evaluation of depression, 65% of the parents had a depressive symptomatology, the intensity of which was moderate in 33% of the cases and severe in almost 2% of the cases. This result is comparable to that of Gatzoyia et al. [50] (34.2% of parents had severe to moderate depressive symptoms). Piven et al. [47] noted that 27.2% of parents of children with autism had at least one major depressive episode and recurrence was noted in 16% of cases. We did not find any correlation between the age of the parents and the presence or absence of depressive symptoms, this result is comparable to that of Ben Thabet et al. [20]. Unlike our findings, the young

age of the parents was correlated with a higher level of stress and depression [51]. In our study, no significant relationship was found between depression and gender. Contrary to our findings, Olsson et al. [51] showed that mothers of children with autism were at a greater risk of depression (16%) than their fathers (6%). This difference is explained by the greater involvement of mothers in the care of their child and their lesser professional stability. According to Hasting et al. [52] mothers and fathers do not differ in their levels of depression, but these findings evince further depressive states than fathers. As regards the parents' level of education, no association was identified with the presence or absence of depression in the parents. Our result was similar to multiple studies [50]. Contrariwise, others have reported a significant association between depression and low levels of education. Ben Thabet et al. [20] have demonstrated that having a low level of education makes parents likely to have depressive symptoms more than those with higher ones. In our work, there was no correlation between professional activity and depression. Few studies have studied the influence of professional activity on the depressive symptoms that parents of autistic children may experience. Besides, some authors indicate that in most cases, mothers leave their jobs [49] in order to better take care of their children ("I dropped my career so I do not abandon my daughter in a hospital where she would have been deprived of any education "), this results in an increased risk of depression amongst them [49]. Studies have reported that the socioeconomic status of parents has not been systematically linked to parental depression in the families of children with intellectual disabilities [51] and that a high socioeconomic level cannot serve as a buffer against this depression, as long as the stressor persists which is, in this case, the child disability. Therewith, several studies have shown a relationship between lower socioeconomic level and the presence of depression in parents of children with autism [20, 50]. Respecting addictive behaviors, no association was noted with the parental depression. This result is consistent with that of Piven et al. [47] who did not demonstrate a correlation between alcoholism and the occurrence of a major depressive episode. The presence of a psychiatric family history does not present a predictive factor of depression among parents of children with autism. Thereupon, the latter authors [47] noted that the psychiatric family history does not seem to increase the anxious and depressive symptoms amidst parents. Anent the age of the child, no relationship was found between the age of the child at the time of the study and the presence of parental depression. Our result is similar to that of Gatzoyia et al. [50]. (Table V)

On the subject of QoL assessment, almost half of the parents in our study had an impaired QoL. Bodily pain (D3) and physical activity (D1) were the two unaffected domains. Our results were comparable to those of Ben Thabet et al. [20] who found an altered QoL in 54% of the parents. This alteration involved six domains with the exception of bodily pain and physical activity [20]. Tung et al. [31] assessed parents' QoL using the WHOQOL-BREF. They concluded that the most affected domains were the physical and psychological ones, while the social and environmental domains were less impaired. Lee et al. [28] used SF-36 to evaluate the QoL of parents of children with autism, and there was impairment in both the mental and physical components. Taylor-Bourke et al. [26] assessing the mental health of mothers of children with intellectual disabilities using the SF-36 scale found that the mother of children diagnosed with ASD had more impaired mental health than the others. In our study, no correlation was found between the QoL and the parents' age.

Our result was similar to that of Brouke-Taylor et al. [26]. On the other hand, an association was found between the gender and the alteration of QoL. In fact, mothers of children with autism had a more impaired QoL (79.2%) than fathers (20.8%). Similarly, Allik et al. [53] demonstrated that mothers had a more altered QoL (physical component) than fathers. However, there were no significant differences between mothers and fathers in assessing QoL [45]. Parents' level of education was not associated with an impaired QoL. Unlike Ben Thabet et al. [20] who showed that an altered QoL was significantly correlated with a lower school level. Regarding the occupational activity, a valid correlation has been demonstrated in our work, this result is akin to that of Ben Thabet et al. [20]. Genuinely, the disability of their children forces the parents to stop their work in order to devote themselves to their special needs, which alter their QoL [23]. In the study by Brouke-Taylor et al. [26] Mothers who maintained their occupations, appraised that their QoL was more positive than the unemployed ones. A part-time or full-time job always had a positive impact on the QoL of parents. In our study, parents' socioeconomic level was not associated with an impaired QoL. Our result was consistent with that of Tung et al. [31] and Baghdadli et al. [54]. Effectively, the correlation between socioeconomic level and QoL was not always evident especially in the West thanks to the support reforms and families of disabled children funding [54].

In the study by Ben Thabet et al. [20] a low socioeconomic level was statistically correlated with an altered QoL. The financial situation appears to be a major stress factor for both mothers and the fathers [20]. Regardless of the age of the child at the time of the study, no correlation was found relating to the parents' QoL. Baghdadli et al. [54] also did not show a significant relationship between the age of the child at the time of the interventions and the QoL of parents. Contrariwise, Tung et al. [31] found that an older age of the child negatively affects the QoL of the parents. (Table VI)

In our work, the estimate of coping strategies by the Brief-Cope scale led us to note that emotion-focused coping was the most commonly used versus that problem-focused. The main strategies adopted by parents were acceptance (83.5%), active coping (78.6%), positive reframing (68%), using emotional support (56.3%), religion (50.5%), and using instrumental support (50.5%). The majority of researches studying parents' coping strategies listed that they are more likely to use emotion-focused coping. Ben Thabet et al. [23] reported that the most used strategies were religion (16%), active coping (16%), planning (16%), acceptance (20%), venting (10%), and using emotional support (10%) and that parents adopt emotional-focused coping in 68% of cases. For Cappe et al. [7] the coping strategies were focused on the search for emotional support and on religion. While Lin [55] studied the coping strategies of Taiwanese mothers with a child with autism by "The Cope Scale" and found that mothers used more problem-focused coping strategies, namely: active coping, Planning, positive reframing and suppressing of competing activities. They used less emotional-focused coping strategies such as denial, venting, behavioral and mental disengagement [55]. Lin also reported that problem-focused strategies were protective factors against depressive symptoms [55]. A study in Lebanon showed that mothers of children with ASD more often used adaptation strategies based on commitment and cognitive reframing than behavioral disengagement or distraction, which offered them mental relief [56]. Smith et al. [78] explain that mothers being the first support for the child often spend more time than other family members in providing the necessary care for their children with autism, and therefore have a daily life full of stressful events and exhausting experiences, which makes them more susceptible to use coping strategies to handle this daily burden. Thereupon, Veyssière et al. [58] argued that emotion-focused coping, particularly religion, acceptance and using emotional support, contributes to accepting the disability while problem-focused coping helps in the management of everyday life [58]. In fact, the frequent recourse of the parents to the emotion-focused coping reflects the uncontrollable and difficult characteristic of the handicap.

Our results should be handled with caution, taking into account some limitations. Firstly, our work was based on a cross-sectional study, although this approach has the advantage of being easy to perform, however, because of the limited duration of the observation, it does not provide a longitudinal view of the phenomenon and lends itself poorly in etiological research. Second, the sample sizes of studies evaluating the psycho-affective impact and QoL of parents of autistic children in the literature, ranged from 28 to 619 parents. However, our sample only interested parents in some regions and therefore cannot be representative on a national scale.

5. Implications

Several implications arise from our observation given the different situations faced by parents. It is imperative to act with autistic children, to prepare specific and useful care in order to minimize their problematic behavior, it is also essential to act with the parents allowing them a specific help in order to alleviate their psychological and emotional distress and consequently ensure a better quality of life. This assistance seems to us to be articulated around the following axes:

- The provision of clear and complete information on autism and on the educational interventions proposed for the child aiming a positive adaptation to the child's handicap.
- Systematic evaluation of the psychological state of the parents in order to reduce their stress and subsequently prevent any depressive symptomatology, thus optimizing their role supporting their child's learning phases and promoting progress.

- Improving the social support of parents through the creation of specialized associations, enabling them to integrate well into society, adjusting adequately to their new situation and avoiding isolation.

- Parental guidance to help them quickly adopt coping strategies that are appropriate and effective by encouraging them to maintain appropriate family relationships and friendships and to optimize their quality of life.

6. Conflict of interest

The authors declare that there is no conflict of interests regarding the publication of this article.

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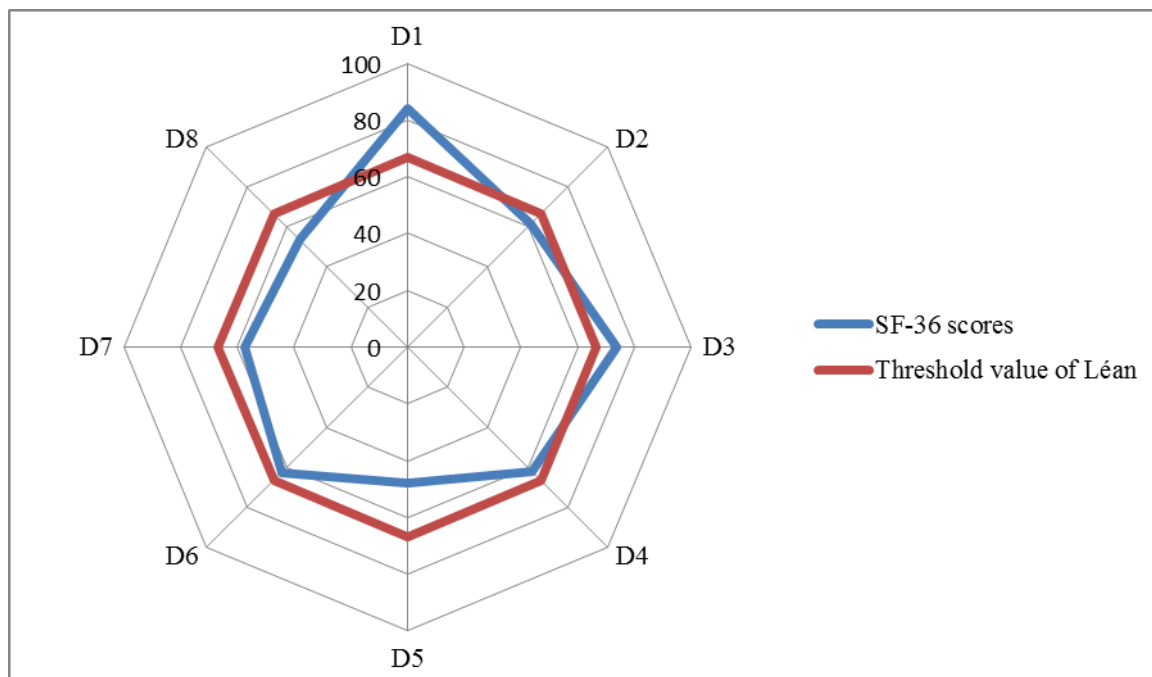
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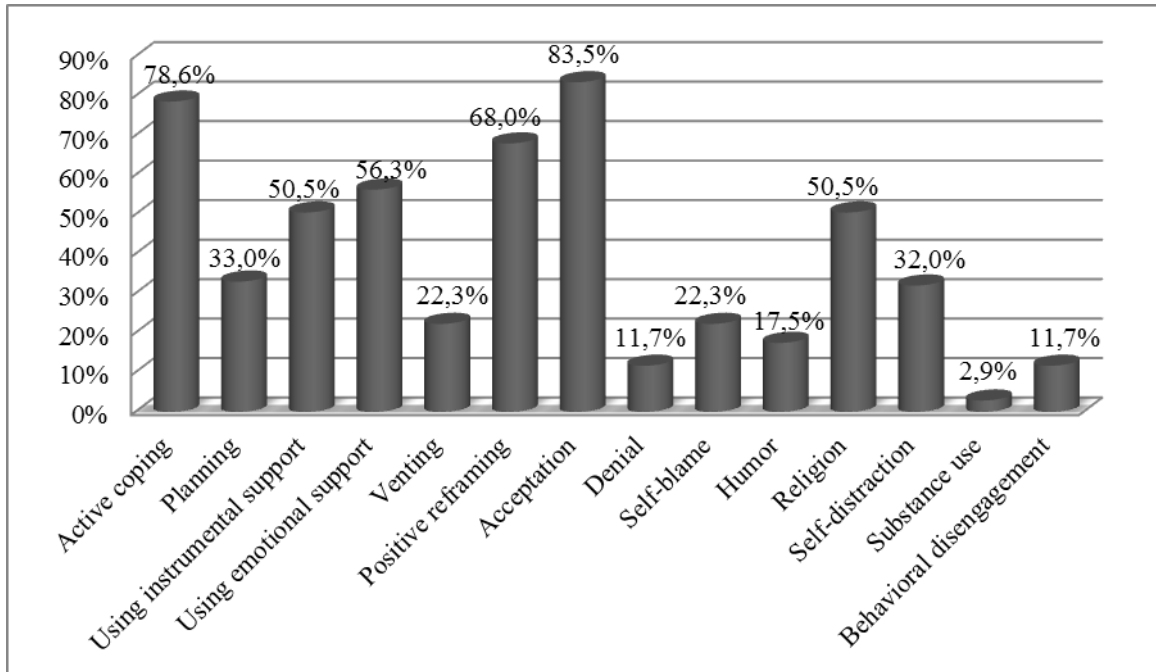
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Figure 1: Variation of mean scores by domains at the SF-36.



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Figure 2: Distribution according to coping strategies.



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Table I: Summary table of the general characteristics of the parents and children

Characteristics	Total number (n=103)
Sociodemographic and clinical features of parents	
*Mean age	38 [25-52]
*Sex ratio (H/F)	0.58
*Married matrimonial status	98.1%
*Number of children in the household	2.6 [1-6]
*High level of instruction	76.7%
*Presence of an occupational activity	64.1%
*Mean socioeconomic level	84.5%
*Presence of addictive behaviors	16.5%
*Presence of a psychiatric family history	19.4%
*Presence of family history of suicide/attempts of suicide	6.8%/61.2%
Sociodemographic and clinical features of children	
*Actual age	5.9 [2-14]
*Age of disorder onset	27.4 months [8-96]
*Evolution period of the disorder	41.2 months [9-120]
*Total number of hospitalizations	1.6 [1-8]
*Other illnesses and other diseases among siblings	Down syndrome, Encephalopathy, Autism
*Somatic comorbidities	Repeated tonsillitis, Hypothyroidism, Mental retardation

Table II: Distribution according to scores obtained at the Beck depression scale.

Depression	Total number	Rate (%)
Presence		
Yes	67	65
No	36	35
Intensity		
Mild state of depression	31	30.1
Mean state of depression	34	33
Severe state of depression	2	1.9

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Table III:Results of studies on the evaluation of depressive symptoms of parents of autistic children.

Studies	Country	Rate (%)	Associated factors
Piven et al. ^[47] (1991)	United States (Iowa City)	27.2	
Olsson et al. ^[51] (2001)	Sweden	22	-Female gender of the parent -Severity of autistic symptoms -Social status of mothers (single mothers)
Ben Thabet et al. ^[20] (2012)	Tunisia	52	-Female gender of the parent -Low level of instruction -Low socioeconomic level
Jones et al. (2012)	USA	72	-Female gender of the parent
Gatzoyia et al. ^[50] (2014)	Brazil	34.2	-Female gender of the parent -Low socioeconomic level -Young age of parents
Falk et al. (2014)	USA		-Low socioeconomic level -Aggressive behavior of children -Severity of autistic symptoms

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Table IV: Results of studies on the assessment of the QoL of parents of children with autism.

Studies	Country	Instruments	Associated factors
Allik et al. ^[53] (2006)	Sweden	SF-12	-Female gender of the parent -Hyperactivity and child's behaviors -Good social interaction of the child
Lee et al. ^[25] (2009)	USA	SF-36	-High income -Having several children -Parental Stress
Taylor-Bourke et al. ^[26] (2012)	Australia	SF-36	-Child behaviors and emotional well-being -Preschool Age -Having a professional activity (mothers) -Participation of mothers in social activities
Ben Thabet et al. ^[20] (2012)	Tunisia	SF-36	-Low socioeconomic level -Low level of instruction -Obligation to stop work because of child's disability -Presence of a similar case in the family -Functional dependence of the child
Dardas et al. ^[45] (2014)	Jordan	WHOQOL-BREF	- Female gender of the parent -High income -Having several children helps mothers to have a better QoL -Having a professional activity (mothers)
Tung et al. ^[31] (2014)	Taiwan	WHOQOL-BREF	-Parental stress -Behavioral problems of the child (hyperactivity/inattention) -Severity of the Autistic disorder -Advanced age of the child
Baghdadi et al. ^[54] (2014)	France	PAR-DD-QOL	-Severity of the Autistic disorder -Child's aberrant behavior (irritability, stereotypy, hyperactivity) -Improvement under treatment -Number of children