

ORIGINAL ARTICLE

Quality of life and service use amongst parents of young children: Results from the *Children and Parents in Focus* trial

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Abstract

Aim: The aim of this study was to assess the quality of life (QoL) and service use of parents who have preschool-aged children, and whether the mental-health problems of parents and their children predict these outcomes. **Methods:** Cross-sectional data were gathered in 2015–2016 in Uppsala County in Sweden where 3164 parents of children aged three- to five-years-old were asked to self-report their own and their children's mental-health status and service use in the past 12 months. Data from the General Health Questionnaire were used to derive health-related quality of life (HRQoL) measures for adults. **Results:** Very few parents reported mental-health problems, while approximately 15% of the sample used any type of parental support and/or psychological health-care service. Families without problems used the least amount of resources. Parents' own mental-health problems predicted usage of both psychotherapy and couples' therapy, while child problems predicted the former but also the use of a parenting program. Parental HRQoL was predicted by mental-health problems, and all families with at least one individual experiencing problems rated their QoL lower than families without problems. **Conclusions: Parental service use and HRQoL is associated not only with their own mental-health status but also with their children's mental-health problems.**

Keywords: *Mental health, parents, service use, costs, preschool children*

Introduction

Mental-health problems are common amongst adults and are the leading cause of years lived with disability (YLD), contributing to almost 23% of all YLDs [1]. Younger adults, especially women, suffer the highest burden of disability from mental-health problems [1]. Mental disorders also carry an enormous financial burden by influencing health care and other societal sectors, as well as affecting individuals' work productivity [2–5]. Moreover, it impairs individuals' health-related quality of life (HRQoL) by up to 50% according to Scandinavian studies [6]. In the latest nationally representative survey in Sweden on mental health, 20% of adults 30–40 years of age indicated poor mental health, with around 7% having visited a psychologist in the previous year [7]. Both the prevalence of self-reported mental-health problems and

service consumption has increased from previous years [7]. To accommodate these growing public-health problems, it is planned within the Swedish national budget to allocate an increasing amount of funds towards psychiatric services [8], especially preventive strategies.

The societal impact of mental-health problems is not only problematic amongst the affected population, but it also influences family members. Research indicates that children with mental-health problems, especially behaviour problems, affect both their parents' use of health-care services as well as work-related productivity [9,10]. European estimates suggest that up to 30% of all costs related to attention-deficit/hyperactivity disorder (ADHD) in children can be attributed to family members [11], while more than 75% of all costs related to children with

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antisocial personality behaviour are borne by the parents [12]. In addition, the HRQoL of adults is also influenced by their children's mental-health status, where mothers of children with mental-health disorders report reduced HRQoL [13,14]. However, there is scarce evidence regarding service use and HRQoL amongst parents with preschool children. Furthermore, there is lack of evidence on whether self-reported mental-health problems, rather than psychiatric diagnoses, amongst members of the family influence parental resource use and HRQoL. Previous research within the area has focused on childhood psychiatric disorders and its effect on parental service use [10,15], and the children have been older than preschool age. To address this issue, we used cross-sectional survey data to provide an overview of the HRQoL and service use of parents of children three- to five-years in Uppsala County in Sweden, based on the occurrence of mental-health problems within the families.

The aims of the study were to (1) identify the proportion of parents and their children with mental-health problems, (2) quantify the services used by these parents and the associated costs and (3) investigate whether different combinations of parental and child mental-health status are predictors of service use and of HRQoL.

Methods

Study design and participants

This study is based on baseline data from the "Children and parents in Focus" trial [16], a multicentre randomised controlled trial of a parenting program delivered at various levels of intensity, conducted in Uppsala County between 2013 and 2017. Further information about the study and methods are published elsewhere [16]. We conducted a cross-sectional analysis using data from the most recent cohort collected from August 2015 to August 2016, using a sample of 3164 parents of 3175 children aged three- to five-years. Parents of these children were recruited via their respective Child Health Centre (CHC) nurses, who sent out an invitation reminder to parents to attend the child's yearly check-up along with two packages of questionnaires. A total of 7372 children were enrolled at the CHCs, although 6913 invitation reminders, along with the questionnaire packages, were sent out. Upon consent, parents were requested to bring one questionnaire to the CHC yearly check-up. In total, parents of 43% of the eligible children consented and filled in the questionnaires. The questionnaires included questions regarding parent and child sociodemographic background, health status and service use. Parents completed a questionnaire

package once a year. Only one questionnaire per guardian included questions regarding service use. Hence, only one responder per child was chosen as the parent. In the sample, 78% of the respondents were female.

Variables

Services used by parents. Parents were asked whether they had attended psychotherapy, couples therapy or a parenting programme in the preceding 12 months. If the answer was yes, they were asked how many times they had used the service within the same timeframe.

Costs. The health-care resource use by parents was quantified using a county-specific price list of health-care services [17]. The cost of parenting programs was based on previous research and program-specific documentation [18,19]. The reference year was 2016, and costs were converted to US\$ with an exchange rate of US\$1=8.82 SEK [20].

Parental mental-health status. The mental-health status of parents was assessed using the General Health Questionnaire (GHQ-12) [21]. The GHQ-12 is a commonly used instrument to monitor population mental health, and a good proxy for depressive disorder in population-based surveys [22]. It consists of 12 items, each asking the parent to rate the degree to which they have experienced a symptom in the past weeks, ranging from 'less than usual' to 'much more than usual'. Scores were combined into an index score, where higher scores signify higher psychological morbidity, and a threshold value of scores ≥ 3 was applied to identify distress, a cut-off which has previously been found to have adequate sensitivity and specificity for separating depressive and non-depressive cases in a Swedish sample [21,22].

Child mental-health status. The parent-report version of the Strengths and Difficulties Questionnaire (SDQ) [23] was used to assess child mental-health status. The SDQ is a brief questionnaire to screen for emotional and behavioural problems in children aged 3–16 years [24]. It is comprised of five scales with five items each (25 items) – emotional symptoms, conduct problems, hyperactivity/inattention, peer relationships and prosocial behaviour – where respondents are asked to rate the child's behaviour over the preceding six months from 'not true' to 'certainly true'. The SDQ has demonstrated satisfactory psychometric properties when used in preschool-aged children [25–26]. Sex- and age-specific norms based on a Swedish sample of two- to five-year-olds

were applied to establish clinical cut-offs which were used to determine whether children had mental-health problems [27].

Sociodemographic variables. Information on parent age, length of stay in Sweden, ethnicity, marital status, employment (any type of employment with a recognised formal income by the state, such as self-employment, employment, parental leave, sick leave, etc.), education and living arrangement was collected. This information was compared with demographic data from national statistics [28] to understand how representative this sample of parents was of the adult population in Uppsala County.

Analyses

The sample of 3164 participating parents (1:1 parent-child ratio) was subdivided into four groups according to parent and child mental-health status: (1) both parent and child with mental-health problems; (2) parent only with mental-health problems; (3) child only with mental-health problems; and (4) no problems (both parent and child). First, we explored if these four groups differed in relation to parent age, parent sex, level of education, employment status, ethnicity, marital status and living arrangement. Second, we estimated the proportion of services used by parents in the four groups, as well as the mean difference in service consumption. Third, we explored whether the presence of mental-health problems amongst parents and/or children was a predictor of mental-health service use by parents using regression analyses. We conducted both the second and third analyses with and without sociodemographic variables as covariates and by using the fourth group as a reference.

Additionally, we were interested in investigating and describing the HRQoL of these parents and whether child mental-health problems would predict it. However, our study only included the generic measure GHQ-12 and did not use an instrument that could directly measure the HRQoL of parents. Hence, we used a published mapping algorithm [29] to estimate EQ5D-3L health state weights from the GHQ-12 scores.

The EQ5D-3L [30] is a commonly used multi-attribute utility instrument that measures changes in self-reported HRQoL on five dimensions – mobility, self-care, usual activities, pain/discomfort and anxiety/depression – with three levels of severity [31]. In this sample, predicted EQ5D-3L scores were transformed into HRQoL scores by using Swedish social tariffs obtained from a sample of the general population,

which assigned values to each health state described in the instrument [32].

We used a generalised linear model fitting a gamma distribution with an identity link when estimating the mean differences in service use, and logistic regression when predicting service use and HRQoL based on mental-health status. Results of the regression analyses are presented as adjusted odds ratios (OR) along with respective 95% confidence intervals (CI). All analyses were performed in R Studio v3.2.3.

Results

Characteristics of the sample

Table I presents the baseline demographics for all the respondents in the sample, grouped by mental-health status of the parents and their children. Amongst the sample of 3164 parents, <1% were families where both the child and the parent had reported mental-health problems. In almost 10% of the sample, only the child had mental-health problems, while the vast majority of families reported no mental-health problems (88.8%). Most parents were born in Sweden and living together with the other parent. In addition, they had formal employment and had completed more than basic education. In comparison to the general population in Uppsala County, parents in the studied sample were more highly educated, and individuals born outside of Sweden were underrepresented [27]. The group that reported mental-health problems in both the parent and the child had the highest prevalence of non-Swedish-born parents and individuals without formal employment, while their length of stay in Sweden was the shortest amongst the four groups.

Mental-health service use of parents according to child and parent mental-health status

The amount of services used by parents of three- to five-year-old children is depicted in Table II. These services include psychological services and parent training/support programs. By looking at all parents, approximately 15% of the sample used any type of service, with the majority receiving psychotherapy. We found that the group that experienced only parental mental-health problems had the highest frequency of using couples' therapy, and more than half of the parents were receiving psychotherapy. Families who did not experience any mental-health problems had the lowest frequency of service use overall (13.9%). However, none of the adjusted mean differences was significantly different from the reference group with no problems.

Table I. Sociodemographic variables amongst parents of three- to five-year-old children by combinations of mental-health status of children and parents.

Variable	Mental-health status of parents and their children ^a						All parents		Missing values
	Parent and child with problems		Parent only with problems		Child only with problems		No problems (both parent and child)		
	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	<i>n</i> (%)	<i>M</i> (<i>SD</i>)	
	(<i>n</i> =17)	(<i>n</i> =31)	(<i>n</i> =307)	(<i>n</i> =2809)	(<i>n</i> =3164)				
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>n</i> (%)	<i>n</i> (%)	<i>n</i> (%)	%
Age	34.13 (5.64)	36.13 (7.05)	35.11 (5.64)	36.82 (5.13)	36.63 (5.20)				2.13
Duration in Sweden (years)	11.33 (12.74)	25.0 (0.00)	20.33 (11.84)	25.84 (12.83)	25.06 (12.84)				24.94
Sex (female)	13 (77)	27 (87)		228 (74)	2204 (79)			2478 (78)	0.00
Ethnicity									
Swedish born	9 (52.94)	28 (90.32)		231 (75.24)	2352 (83.73)			2620 (82.81)	2.75
Non-Swedish born	7 (41.18)	3 (9.68)		70 (22.80)	377 (13.42)			457 (14.44)	
Marital status									
Single	1 (5.88)	3 (9.68)		18 (5.86)	164 (5.84)			186 (5.88)	2.31
Other arrangements	16 (94.12)	28 (90.32)		282 (91.86)	2579 (91.81)			2905 (91.81)	
Employment									
Formal income	14 (82.35)	29 (93.55)		297 (96.74)	2747 (97.79)			3087 (97.56)	0.01
No formal income	3 (17.64)	2 (6.45)		10 (3.26)	62 (2.21)			77 (2.43)	
Education ^b									
<Basic education	0	0		4 (1.30)	3 (0.11)			7 (0.22)	4.52
>Basic education	17 (100)	27 (87.10)		285 (92.83)	2685 (95.59)			3014 (95.26)	
Living arrangement									
Both parents	15 (88.24)	28 (90.32)		258 (84.04)	2518 (89.64)			2819 (89.10)	2.27
Other arrangements	2 (11.76)	3 (9.68)		40 (13.03)	228 (8.12)			273 (8.63)	

^aThe four groups of parent and child mental-health status was determined by their scores on GHQ-12 (parents) and SDQ (children). Cut-offs were applied to classify whether the parents and children had mental-health problems.

^bBasic education is defined as having completed at least nine years of schooling.

M: mean; *SD*: standard deviation.

Table II. Mean service use and predictors of service use in past 12 months amongst parents of three- to five-year-old children by combinations of mental-health problems amongst parents and/or children and service provider.

Type of service	Mental-health status of parents and their children				All parents (n=3164)
	Parent and child with problems	Parent only with problems	Child only with problems	No problems (both parent and child)	
	(n=17)	(n=31)	(n=307)	(n=2809)	
<i>Psychotherapy</i>					
n (%) who visited	3 (17.6)	17 (54.8)	38 (12.4)	211 (7.5)	269 (8.5)
Total number visits (counts)	24	156	228	1598	2006
Average n visits (SD)*	1.41 (3.22)	5.57 (11.40)	0.76 (2.83)	0.59 (3.18)	0.66 (3.34)
Adjusted mean difference (SE)	0.75 (1.50)	3.66 (4.28)	0.01 (0.13)	Reference	–
Adjusted OR (95% CI)	2.88 (0.64–9.51)	15.57 (6.87–36.20)	1.70 (1.13–2.50)	Reference	–
<i>Couples' therapy</i>					
n (%) who visited	0	5 (16.1)	12 (3.9)	90 (3.2)	107 (3.4)
Total number visits (counts)	0	18	90	588	696
Average n visits (SD)*	–	0.58 (1.48)	0.30 (1.78)	0.21 (1.56)	0.22 (1.57)
Adjusted mean difference (SE)	–0.05 (0.22)	0.25 (0.47)	0.16 (0.13)	Reference	–
Adjusted OR (95% CI)	–	6.90 (2.00–18.92)	1.32 (0.67–2.41)	Reference	–
<i>Parenting programme</i>					
n (%) who visited	1 (5.9)	2 (6.5)	31 (10.1)	123 (4.4)	157 (5.0)
Total number visits (counts)	1	2	31	123	157
Average n visits (SD)**	0.06 (0.24)	0.07 (0.25)	0.10 (0.30)	0.04 (0.21)	0.05 (0.22)
Adjusted OR (95% CI)	1.83 (0.10–9.44)	1.93 (0.31–6.67)	2.53 (1.60–3.89)	Reference	–
<i>Any service^a</i>					
n (%) who visited	4 (23.5)	18 (21.8)	67 (21.8)	390 (13.9)	479 (15.1)
Total number visits (counts)	4	18	67	390	479
Average n visits (SD)**	0.24 (0.44)	0.58 (0.50)	0.22 (0.41)	0.14 (0.34)	0.15 (0.36)
Adjusted OR (95% CI)	2.25 (0.62–6.63)	8.43 (3.84–19.11)	1.79 (1.30–2.42)	Reference	–
		Families where the child has problems (n=324)	Families where the child does not have problems (n=2840)		
<i>QoL</i>					
Mean (SD)	0.92 (0.05)		0.94 (0.03)		0.94 (0.04)
Estimate	–0.014 (–0.02 to –0.01)		Reference		–
Adjusted estimate	–0.02 (–0.02 to –0.01)		Reference		–

Estimates marked in bold are statistically significant at $p < 0.05$.

Adjusted mean difference is an estimation of the differences between average resource use between each group in relation to the reference group. All odds ratios are estimates where we have predicted how belonging to each group affects whether any of the services have been used (binary outcome). The outcomes are presented with the group 'no problems (both parent and child)' as the reference group. Included adjustments are for parent age, parent sex, ethnicity, marital status, employment, education and living arrangement.

^aAny service refers to having used psychotherapy, couples' therapy and/or having attended a parenting programme.

*Calculated as the average number of visits in every subgroup.

**Binary variables where the maximum 'number of visits' was one.

OR: odds ratio; CI: confidence interval; QoL: quality of life; SE: standard error.

Predictors of service use and HRQoL of parents by mental-health status

The mental-health status of parents and/or their children was also used to predict usage of various services and HRQoL. As seen in Table II, the group consisting of parents and children with mental-health problems was not significantly more likely to use any of the services than families without problems. Parents who experienced problems with their children but did not have any mental problems of their own had significantly higher odds of attending parenting programs (OR=2.53, 95% CI 1.60–3.89),

psychotherapy (OR=1.70, 95% CI 1.13–2.50) and any service (OR=1.79, 95% CI 1.30–2.42). Families where only parents reported mental-health problems had significantly higher odds of attending psychotherapy (OR=15.57, 95% CI 6.87–36.20), couples' therapy (OR=6.90, 95% CI 2.00–18.92) and any service (OR=8.43, 95% CI 3.84–19.11). Controlling for sociodemographic characteristics did not largely alter the results.

HRQoL amongst parents was also significantly predicted by child mental-health problems. Child mental-health problems had a negative impact on

Table III. Mean (SD) annual cost (2016 US\$) of service consumption amongst parents of three- to five-year-old children by combinations of mental-health status of children and parents.

Type of service	Mental-health status of parents and their children				All parents
	Parent and child with problems	Parent only with problems	Child only with problems	No problems (both parent and child)	
	(n=17)	(n=31)	(n=307)	(n=2809)	
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
Psychotherapy	355.32 (811.44)	1403.64 (2872.8)	161.52 (713.16)	75.6(418.32)	166.32 (841.68)
Couples' therapy	–	146.16 (372.96)	75.6 (448.56)	52.92 (393.12)	55.44 (395.64)
Parenting programme	51.12 (204.48)	59.64 (213)	85.2 (255.6)	34.08 (178.92)	42.6 (187.44)
Any service ^a	132.77 (243.32)	320.74 (276.5)	121.66 (226.73)	77.42 (188.02)	82.95 (199.08)

^aAny service refers to having used psychotherapy, couples' therapy and/or having attended a parenting programme.

Unit costs: Psychologist: US\$252 per hour consultation/visit (cost used for both psychotherapy and couples' therapy). Parenting program: US\$852, an average cost based on the three most commonly used programs reported by the questionnaire (Comet, COPE and Triple P). Any service is estimated to be the average cost of psychotherapy, couples' therapy and a parenting programme.

parental HRQoL, and families where the child had mental-health problems had a lower mean HRQoL than families with mentally well children.

Costs of services used by mental-health status of parents and their children

The mean annual cost of services used by parents of three- to five-year-old children is depicted in Table III where all unit costs and corresponding sources can be found in the footnotes. The number of services used was multiplied with the unit costs of the corresponding services to estimate the total service costs. On average, US\$83 was spent per parent per year on services, with the presence of mental-health problems within the family increasing the annual cost of services used. In families where only parents reported mental-health problems, costs for any service were almost four times as high (US\$320) as the average cost per parent in the whole sample. Psychotherapy accounted for the majority of the annual costs, largely driven by the relatively higher frequency of service usage.

Discussion

Based on cross-sectional data from the “Children and parents in Focus” trial [16], conducted in Uppsala County in Sweden, this paper estimated the HRQoL and service use of parents of preschool-aged children in relation to mental-health problems within the families.

Of the whole sample, very few parents reported mental-health problems, while parental report suggested that psychological problems were 10 times more prevalent in their children. Approximately 15%

of the sample of parents used any type of parental support and/or psychological health-care service, whereas families without problems used the least amount of resources. Psychotherapy was significantly more likely to be used overall, and was used at a higher frequency within families where only the parent experienced mental-health problems. This led to the highest average annual cost of services used by families in the sample. Parental HRQoL was predicted by child mental-health status, and families with a child experiencing problems rated their QoL lower than families without problems.

In comparison with other studies, this is the first study looking at service use amongst parents with children three- to five-years-old and whether mental-health problems, rather than diagnoses, predict service use and HRQoL. Mental-health problems amongst adults aged 35–49 years in Uppsala County are estimated at 19% through nationally representative questionnaires using the same instrument as in this study, the GHQ-12 [7]. A recently published study in Sweden, also using the GHQ-12, reports mental-health problems of 28% amongst parents of young children [33]. However, <2% of the adults in this study sample reported mental-health problems. Reasons for the low rate could be multiple. First, on average, the sample was over-represented by individuals with higher education, which is known to affect mental health positively [34]. In addition, there were fewer people who were non-Swedish born in our sample compared to the general population. A systematic review of Swedish studies looking at the relationship between mental health and immigrant status found that in general, not being born in Sweden was associated with higher odds of depression and/or anxiety [35]. Second, parents self-selected into participating

in the study. Thus, this could have attracted parents with certain characteristics, which may not be representative of the general population. Regarding service use and consistent with findings from the nationally representative health survey [7], about 7–8% of the sample had visited a psychologist. As our sample is likely to be under-represented by adults with mental-health problems, it indicates that service use and related costs, at least when it comes to the use of a psychologist, would have been much larger had our sample been representative nationally. However, it is also an indication of service usage being as high as in the general population, despite the parents self-reporting mental-health problems to a much lesser extent than population studies have shown. It may signal that the rate of service use has previously been underestimated, that parents use services preventively or that factors not controlled for in the analysis have an impact on service use, such as somatic health. Other research in the field has also found evidence that mental disorders predict use of health care and other types of services [2–5], while our study found conflicting results related to mental-health problems. Service use was not predicted by both parent and child reported mental-health problems, while when only parents reported mental-health problems, it predicted higher use of almost all service types. As argued, few individuals reported mental-health problems and so conclusions should be drawn with caution. Additionally, since only three types of mental-health services were measured, families could have used other types of services within or outside of the health-care sector, which was beyond the scope of this research.

Furthermore, having a child with mental-health issues predicted higher service use on almost all counts for parents not experiencing mental-health difficulties, but service use was on average only significantly higher when it came to the use of parenting programs. This is in line with other studies showing an effect of children's psychological disorders on parents' service use [9,11,15]. The results seem to suggest that service consumption is associated with mental-health symptoms amongst children and not only disorders, which this study is the first to conclude.

Another important aspect of the study was the HRQoL experienced by parents. In line with previous research that has also found a negative correlation between children's mental illness and parent's HRQoL [13], this study followed a similar pattern. Overall, HRQoL was predicted to decrease when having a child with a mental-health problem.

The results suggest that parental mental-health problems positively affect service use, and child mental ill-health has a negative impact on QoL, although the proportion of problems was small and hence may

under-represent the true amount of service use. The services provided therefore ought to be evidence based and its efficiency evaluated to ensure effective spending of public resources. In addition, as child mental health is associated with parental service use, services offered to children to prevent or reduce mental-health problems may have a broader health and economic impact by potentially affecting parental service use. It also becomes important from a clinical perspective to screen both parents for mental-health problems to be able to offer early interventions and services.

An important strength of this study is its large sample size ($n=3164$), which reduces the likelihood of type I errors and gives a picture of the general mental-health status quo of these parents of preschool-aged children. However, as some of the background characteristics of the individuals in this sample differed compared to the population in Uppsala County, generalisation of these results should be done cautiously. In addition, as the prevalence rate of mental-health problems in our sample was found to be much smaller than in other surveys, conclusions may not be drawn any further than for our sample. Due to the low prevalence rates, some of the subgroups analysed in this study were of relatively small sample sizes, which may have introduced bias in the estimates. Another limitation is also the narrow range of mental-health services and parental support included in this study, which are fundamental to get a more complete picture of the resources used by these parents, such as visits to clinicians, face-to-face help from counsellors and therapists, psychoactive drugs and informal care. Access to more data was limited by study design, such as income level, which is likely to be highly associated with mental health, QoL and service use. HRQoL data were also not collected, and we had to map GHQ-12 scores to estimate EQ5D-3L health state weights, which introduces bias. We also had to use parents' reports as a proxy for their children's mental-health status, which also may have introduced bias into the analyses. However, there are currently no instruments available for such young children to assess their own mental health, and proxies are the best option. Lastly, the cross-sectional design of the study presents a challenge of comparison of the findings over time, thereby making the results less useful to answer questions about long-term resource use.

Conclusions

In this study, few adults with preschool-aged children reported mental-health problems, but their service use was as high as in the general population. Mental-health problems amongst children predict parents'

HRQoL negatively. Evidence-based universal interventions aimed to promote mental health for children and parents should be routinely provided.

Declaration of conflicting interests

The authors declare that there is no conflict of interest.

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