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CLINICAL CORRESPONDENCE

Predictors of benzodiazepine use among parents of children with cancer: a cross-sectional study from Lebanon

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1 | BACKGROUND

Parents of children with cancer experience tremendous stress that affects the whole family.[1] This emotional turmoil is due to the cancer diagnosis, lack of knowledge about the disease, its complications and treatment consequences,[2] prognosis uncertainty,[3] frequent hospitalizations, and lower quality of life.[4] Parents may resort to medications like benzodiazepines to relieve their psychological distress.[5] We investigated the prevalence of benzodiazepine use and parental emotional distress expressed as anxiety or depression among parents of children with cancer in Lebanon, a country where drug purchasing from drugstores is possible without a medical prescription.[6] We also explored the association between benzodiazepine use and emotional distress. Findings may shed light on the magnitude of this problem and whether such parents need psychosocial support.

2 | METHODS

Between December 2014 and March 2015, a convenience sample of 100 parents of children with cancer treated as inpatients or outpatients at the Children's Cancer Institute (CCI), American University of Beirut Medical Center, Lebanon, was surveyed to collect sociodemographic and disease-specific information. The CCI is a multidisciplinary unit that provides free medical care for children with cancer and is affiliated with St. Jude Children's Research Hospital in Memphis, Tennessee, United States of America. Parents also self-administered the validated Arabic *Hopkins Symptom Checklist 25* (Appendix S1) to screen for anxiety and/or depression[7] to generate an anxiety score, a depression score, and a total score. Any score above 1.75 is considered as symptomatic. Parents provided verbal consent, and the American University of Beirut Medical Center Institutional Review Board approved the study.

Parents and children's baseline characteristics, disease variables, *Hopkins Symptom Checklist 25* scores, and benzodiazepine use were summarized as percentages. Bivariate analysis between benzodiazepine use and each variable was explored using the chi-square test. Two logistic stepwise regression models investigated the association between (1) parental benzodiazepine use (outcome) and baseline characteristics, cancer-related variables, and *Hopkins* scores (predictors) and (2) total *Hopkins* score (outcome) and baseline characteristics and cancer-related variables (predictors). Variables were entered in models if significant in the bivariate analysis (P value < .05). Odds ratios and 95% confidence intervals were calculated as appropriate. The Statistical Package for Social Sciences version 21 (IBM Corp., Armonk, NY, USA) was used for data entry, management, and analyses.

3 | RESULTS

The mean (± standard deviation) parental age was 37.8 (± 8.2) years (range: 23.0-67.0) whereas that of the children's was 6.9 (± 5.0) years (range: 0.6-20.0). Self-medication was prevalent among 27% of parents with 17% being on benzodiazepines. Of those, only 23% were prescribed by a physician. Parental benzodiazepine use was significantly higher than the 9.6% prevalence in the Lebanese population (P = .02).[6] About 71% of parents had symptomatic total *Hopkins* scores, 67% with anxiety, and 69% with depression (Table 1).

Parents were significantly more likely to use benzodiazepines if older than 34 years or had more than one child, had better marital relationship after the cancer diagnosis, or had asymptomatic total *Hopkins* scores. In contrast, parents were significantly more likely to have symptomatic total *Hopkins* scores if unemployed or were younger than 35 years, whose children were hospitalized at the time of the study, or were mothers. Mothers were also at risk of anxiety and depression,

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TABLE 1 Parental baseline characteristics and bivariate analyses with benzodiazepine use and symptomatic Hopkins scores

	%	BZD use		Anxiety		Depression		Total Hopkins score	
		%	*P* value	%	*P* value	%	*P* value	%	*P* value
Gender									
Female	77	13.0	.051	75.3	.001$^{\$}$	74.0	.047*	77.9	.005$^{\$}$
Male	23	30.4		39.1		52.2		47.8	
Residence									
Outside Beirut	75	13.3	.091	65.3	.539	69.3	.901	70.7	.999
Within Beirut	25	28.0		72.0		68.0		72.0	
Age (year)									
<35	40	51.0	.009$^{\$}$	84.6	.005$^{\$}$	74.4	.385	84.6	.028*
≥35	60	25.4		57.6		66.1		64.4	
Education									
≤Intermediate	34	5.9		70.6		76.5		76.5	
Secondary	28	25.0	.096	64.3	.854	67.9	.47	75.0	.397
University	38	21.1		63.8		63.2		63.2	
Monthly income									
No information	79	11.8		72.1		77.9		77.9	
<1 000	7	0.0	.001$^{\$}$	85.7	.531	57.1	.037*	85.7	.154
1 000-5 000	10	40.0		60.0		50.0		50.0	
>5 000	4	75.0		50.0		25.0		50.0	
Employment									
Yes	33	27.3	.055	57.6	.16	51.5	.008$^{\$}$	57.6	.038*
No	67	11.0		71.6		77.6		77.6	
Anxiety									
Yes	67	11.9	.055	—	—	—	—	—	—
No	33	27.3							
Depression									
Yes	69	14.5	.319	—	—	—	—	—	—
No	31	22.6							
Total Hopkins score									
Symptomatic	71	11.3	.017*	—	—	—	—	—	—
Asymptomatic	29	31.0							

BZD, benzodiazepine.

*$P < .05$.

$^{\$}P < .01$.

whereas younger parents or those with inpatient children were at risk of anxiety. Unemployment was a risk factor for depression (Tables 1 and 2).

Parents reported several stress-relieving behaviors including crying, praying, seeking family support, and smoking. Only 7% sought professional psychological advice. Whereas fathers used benzodiazepines when stressed, mothers resorted to emotional coping strategies.

In multivariate analysis, parental benzodiazepine use was best predicted by employment status (OR = 0.3; 95% CI: 0.1-1, $p = .045$), whereas symptomatic parental *Hopkins* score was predicted by female gender of parent (OR = 4.8; 95% CI: 1.7-13.7, $p = .004$) and child's current hospitalization (OR = 0.1; 95% CI: 0.01-0.8, $p = .034$).

4 | DISCUSSION

In this cohort of parents of children with cancer, benzodiazepines use was significantly higher than that of the general Lebanese population,[6] mostly self-prescribed, which is consistent with previous literature from Lebanon reporting that 11% of prescriptions are based on family, friend, or pharmacist's advice.[6] Benzodiazepine users were less symptomatic for anxiety or depression than non-users, probably because of the drugs' anxiolytic effects masking emotional symptoms.

Our findings are consistent with studies in the review of Kearney et al.[1] Unemployed parents had higher anxiety and depression rates[8] but were less likely to use benzodiazepines, probably because of the inability to buy these drugs. Parents with more

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TABLE 2 Children's characteristics and relevant bivariate analyses with benzodiazepine use and symptomatic Hopkins scores

	%	BZD use		Anxiety		Depression		Total Hopkins score	
		%	*P* value	%	*P* value	%	*P* value	%	*P* value
Child's gender									
Female	47	12.8	.288	66.0	.835	63.8	.292	70.2	.87
Male	53	20.8		67.9		73.6		71.7	
Setting									
Outpatient	81	16.0	.601	60.5	.004$^{\$}$	65.4	.111	65.4	.011*
Inpatient	19	21.1		94.7		84.2		94.7	
Time from diagnosis (months)									
≤3	28	25.0		64.3		78.6		67.9	
4-12	40	15.0	.398	65.0	.775	55.0	.047*	67.5	.560
>12	32	12.5		71.9		78.1		78.1	
Age at diagnosis (year)									
≤3	40	10.0	.278	72.5	.065	72.5	.764	75.0	.211
3-10	40	20.0		72.5		65.0		75.0	
>10	20	25.0		45.0		70.0		55.0	
Cancer type									
Leukemia/lymphoma	75	16.0	.508	68.0	.666	73.3	.074	72.0	.836
Others	25	20.0		57.4		42.9		64.3	
Relapses									
No relapses	89	28.1	.645	68.0	.713	73.3	.105	72.0	.703
≥1 relapse	11	18.2		64.0		56.0		68.0	
Number of siblings									
0	18	0.0		72.2		77.8		72.2	
1	30	1.0	.015*	80.0	.103	73.3	.473	80.0	.370
≥2	52	26.9		57.7		63.5		65.4	
Parent-child relationship									
Better	61	21.3		62.3		67.2		67.2	
Worse	21	48.0	.219	76.2	.442	81.0	.365	85.7	.247
No change	18	16.7		72.2		61.1		66.7	
Marital relationship									
Better	18	27.8		72.2		72.2		72.2	
Worse	27	0.0	.019*	70.4	.725	85.2	.065	74.1	.889
No change	55	21.8		63.6		60.0		69.1	
Parent-sibling relationship									
Better	13	9.1		63.6		54.5		72.7	
Worse	45	0.0	.000$^{\$}$	78.4	.077	78.4	.137	83.8	.035*
No change	42	47.1		52.9		58.8		55.9	

BZD, benzodiazepine.

*$P < .05$.

$^{\$}P < .01$.

children had higher benzodiazepine use reflecting the stress that comes with having a large family.[9] Mothers were at higher risk for anxiety and depression, a finding consistent with previous literature.[10] Finally, a child's hospitalization, surrogate of more severe disease, was associated with more benzodiazepine use and symptomatic Hopkins scores.

Our study is limited by its small sample size and generalizability to other centers or countries. Nevertheless, the CCI is a regional referral center that receives patients from Lebanon and neighboring countries. The strength of this study is that it investigated the impact of pediatric cancer diagnosis on Arab parents, which has not been done previously. It also ascertained their emotional distress using an Arabic validated instrument.

5 | CONCLUSIONS

Parents of children with cancer need routine psychological counseling and support for better emotional, social, and behavioral adjustment to their children's diagnosis and treatment.[1] Replication of our findings is needed for better understanding of the magnitude of this problem.

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CONFLICT OF INTEREST

None declared.

Key points

- Parents of children with cancer experience tremendous stress.
- Parents may resort to self-medication as a coping mechanism.
- Benzodiazepine use is more prevalent among such parents than in the general population.
- Parents are at risk of anxiety and/or depression.
- Routine psychological counseling and support for parents of children with cancer are recommended.

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