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Original article

Clinical Profiles of Major Depressive Disorder Based on Age Groups: A Cross-Sectional Study, Vietnam.

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Abstract: ***Introduction:*** Depression is a common mental disorder; however, no study has investigated adolescent and late-life depression in Vietnam, and little has been done to compare the clinical characteristics among age groups of patients with this condition in the literature. Therefore, the study aims to examine the differences in symptom presentation among adolescents, adults, and the elderly with major depressive disorder (MDD). ***Methods:*** A total of 238 patients diagnosed with MDD according to the DSM-5, including 43 aged 10 to 17 years old, 74 aged 18 to 59 years old, and 121 aged 60 and older, were recruited in a cross-sectional study from March to August 2022 at three psychiatric clinics in Ho Chi Minh City. The eligible participant completed an epidemiological questionnaire. ***Results:*** All participants exhibited depressed mood, and 58.8% admitted to having suicidal ideation, with an alarming rate among adolescents (72.1%). Adolescents were less likely to experience the symptoms of interest decrease, appetite problems, insomnia, fatigue, and anxious distress than these other groups ($p < 0.05$). The pattern of symptom profiles in depressed adults largely remained the same in the older patients, except for psychomotor retardation and concentration problems, in which the latter were less likely to exhibit these symptoms compared to the first one ($p<0.001$). ***Conclusion:*** Adolescents appear to experience fewer depressive symptoms than adults and the elderly, while the two later groups show similar clinical presentations. Therefore, the differences in symptoms across age groups necessitate an individual approach and management by clinicians.

Keywords: major depressive disorder; age groups; clinical characteristic; psychiatric facility.

1. INTRODUCTION

Major depressive disorder (MDD) is one of the most prevalent disorders among mental health conditions, with a lifetime prevalence ranging from 2 to 21% in the general population [1], from 1.1 to 14.6% among adolescents [2], and from 0.4 to 35% among older adults [3]. When compared to the healthy group, the lifetime odds of suicidal ideation, a suicide plan, and a suicide attempt among patients with MDD were approximately threefold, tenfold, and fourfold, respectively [4], and this is the second leading cause of youth death [5]. Additionally, approximately 80% of depressed patients have problems with social activities and relationships [6, 7], 12% of depressed teenagers have serious impairments in education and social functioning [8], and the annual direct cost for depressed elderly is 1.5 times higher than the healthy elderly counterpart [9]. Not only does depression obviously impact patients themselves, but also their supportive relatives,

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whose quality of life might be decreased and influenced by the severity of depressive symptoms [7], with well over 80% of caretakers suffering from stress and experiencing mental health problems, such as sleep disturbances, fatigue, and appetite changes [10]. For this reason, early detection and adequate treatment for patients with MDD have been top priorities worldwide, particularly in low- and middle-income nations [11].

However, only a small number of patients with MDD received minimally appropriate intervention, especially those in low- and low-middle-income countries, with a ratio of 1 in 27 individuals [12]. In particular, nearly 70% of adolescent depression [13] and 50% of late-life depression [14] are underdiagnosed and undertreated due to their fluctuating and distinctive symptoms. Even though the diagnostic criteria for MDD are identical regardless of age, there are relative differences in symptom characteristics among each age group, especially in adolescents and the elderly. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria for MDD demonstrate that the symptom of irritation represents a depressed mood and that weight loss is considered to fail the weight expectation among children and adolescents [15]. Compared to adults, patients aged 17 and below are more likely to exhibit vegetative symptoms (insomnia, fatigue, and eating and weight problems) [16] and physical complaints (abdominal pain and headaches) [17]. Similarly, the core symptoms, including sad mood, interest loss, and anhedonia, which are acknowledged to be characteristics of aging, are not expressed as a complaint, while vegetative symptoms and somatic symptoms are more likely to be presented in the elderly [18].

Due to the fact that the prevalence of depressive disorders was high in primary health care in Vietnam (15.8%) [19], depression has recently become an appropriate concern in the fields of research and clinical application in the country. However, no study has investigated adolescent and late-life depression in Vietnam, and little has been done to compare the clinical characteristics among age groups of patients with this condition in the literature. Therefore, the study aims to examine the differences in symptom presentation between three target populations, including adolescents, adults, and the elderly.

2. MATERIALS AND METHOD

2.1. Study settings

A cross-sectional study was performed from March to August 2022 at three mental health facilities, including the psychiatric department of Nguyen Tri Phuong Hospital and University Medical Center and the pediatric psychological-psychiatric department of the Mental Health Hospital in Ho Chi Minh City.

2.2. Participants

All 10-year-old and older patients were recruited if they were diagnosed with MDD by licensed psychiatrists based on the Structured Clinical Interview for DSM-5, Diagnostic and Statistical Manual of Mental Disorders (SCID-5), which was introduced by the American Psychiatric Association (APA) (https://www.appi.org/products/structured-clinical-interview-for-dsm-5-scid-5). Participants were recruited if they and their caregivers agreed to participate in the survey and had the ability to communicate in Vietnamese.

The participants were excluded if they were taking psychotropic medications during the two weeks before recruitment, based on health record reviews, and met other mental health conditions based on DSM-5 criteria (including psychosis, dementia, bipolar disorder, mental retardation, and autism spectrum disorders).

2.3. Sampling

The eligible participants and their caregivers were first given information about the study and its purpose, then asked to sign an informed consent form, and finally clinical and demographic questionnaires were collected. The participants were classified into three groups based on age, including groups aged 10 to 17 years, 18 to 59 years, and 60 years and older, which were divided according to some previous studies [16], [18].

2.4. Measure

The demographic questionnaire included age, gender, education level, occupational status, economic status, and place of residence. Nine symptoms of depression according to DSM-5 criteria include depressed mood or irritability for adolescents, loss of interest, appetite problems, sleep disturbances, loss of concentration, fatigue, psychomotor retardation or agitation, feeling worthless, and suicidal ideation [20], with two responses: “yes” or “not at all”.

Anxious distress is present if the participants exhibit at least two of the following symptoms during the episode: feeling tense or keyed up, feeling unusually restless, having trouble concentrating due to worry, having a fear that something terrible will happen, and a sense of control loss [21]. The time from the onset of the first symptom to the interview time point is defined as the cumulative duration of the disease, and the total number of symptoms is counted by the sum of the symptoms in the nine DSM-5 depressive symptoms.

2.5. Statistical method

The rates of endorsing symptoms in the three groups are expressed as percentages (%), and the mean of total symptom number and cumulative disease duration are expressed as mean ± SD. A one-way ANOVA was applied to examine the difference between the mean number of depression symptoms and the cumulative duration of the disease among the three age groups. Due to the fact that the chi-square test was not suitable if any cell of the contingency table was below 5, a Fisher exact test was conducted to evaluate whether there were statistically significant differences between the symptoms among the groups. Additionally, a post hoc test using the Bonferroni method was applied to compare the three groups for each characteristic. P values were adjusted for multiple comparisons using the false discovery rate (FDR), and the statistical significance level was set at 0.05, with two

sides denoting significance. SPSS version 28.0 was used for analysis.

3. RESULTS

The study sample consisted of a total of 238 participants, including 43 adolescents (18%) aged 10 to 17 years (mean age = 14.2 years), 74 adults (31%) aged 18 to 59 years (mean age = 35.7), and 121 elderly (51%) aged 60 years and older (mean age = 66.8 years), of whom 71.4% were female. Other demographic features were demonstrated in Table 1. Table 2 shows the differences among the three groups related to the nine depressive symptoms, the anxious distress specifier, and some clinical features. The mean total number of depressive symptoms was 7.6 (± 1.2), with adolescents having the fewest and adults having the most (6.6 ± 1.3, 8.2 ± 0.9, p=0.000, respectively). The mean cumulative duration of the disease was 21.9 weeks (± 20.2), with the elderly experiencing twice as long as the other groups (p=0.000).

Table 1. Social-epidemiological features of the sample based on age groups.

	Features	**Total (n=238)**	**10-17 years (n=43)**	**18-59 years (n=74)**	**≥ 60 years (n=121)**
Age		47.6 (±22.3)	14.2 (±1.4)	35.7 (±12.8)	66.8 (±5.5)
Gender	Male	68 (28.6%)	12 (27.9%)	26 (35.1%)	30 (24.8%)
	Female	170 (71.4%)	31 (72.1%)	48 (64.9%)	91 (75.2%)
Education degree	Primary school and under	66 (27.7%)	5 (11.6%)	7 (9.5%)	54 (44.6%)
	Secondary and high school	138 (58.0%)	38 (88.3%)	38 (51.3%)	62 (51.2%)
	College and higher	34 (14.3%)	0 (0%)	29 (39.2%)	5 (4.2%)
Employment status	Working/Studying	123 (51.6%)	35 (81.4%)	58 (78.4%)	30 (24.8%)
	Not working/ Not studying	115 (48.4%)	8 (18.6%)	16 (21.6%)	91 (75.2%)
Place of residence	Urban	163 (68.4%)	37 (86.0%)	62 (83.8%)	64 (52.9%)
	Rural	75 (31.6%)	6 (14.0%)	12 (16.2%)	57 (47.1%)
Economic status	Poor	41 (17.2%)	6 (14.0%)	2 (2.7%)	33 (27.3%)
	Average and wealthy	197 (82.8%)	37 (86.0%)	72 (97.3%)	88 (72.7%)

Table 2. Clinical characteristics of the sample based on age groups.

	Total (n=238)	**10-17 years (n=43)**	**18-59 years (n=74)**	**≥ 60 years (n=121)**	**Fisher Exact**	**P value**
Symptoms (n, %) [1]						
Depressed mood	238 (100%)	43 (100%)	74 (100%)	121 (100%)	-	-
Loss of interest	220 (92.4%)	34 (79.1%) [a]	72 (97.3%) [b]	114 (94.2%) [b]	11.308	0.003
Loss of appetite	189 (79.4%)	18 (41.9%) [a]	66 (89.2%) [b]	105 (86.8%) [b]	37.889	0.000
Insomnia	224 (94.1%)	31 (72.1%) [a]	72 (97.3%) [b]	121 (100%) [b]	34.075	0.000
Psychomotor retardation	202 (84.9%)	25 (58.1%) [a]	73 (98.6%) [b]	104 (86%) [c]	33.461	0.000
Fatigue	218 (91.6%)	29 (67.4%) [a]	74 (100%) [b]	115 (95%) [b]	32.333	0.000
Feeling worthless	195 (81.9%)	36 (83.7%) [a]	63 (85.1%) [a]	96 (79.3%) [a]	1.071	0.607
Loss of concentration	198 (83.2%)	37 (86%) [a, b]	71 (95.9%) [b]	90 (74.4%) [a]	16.928	0.000
Suicidal ideation	140 (58.8%)	31 (72.1%) [a]	42 (56.8%) [a]	67 (55.4%) [a]	3.869	0.140
Anxious distress	201 (84.5%)	25 (58.1%) [a]	67 (90.5%) [b]	109 (90.1%) [b]	22.489	0.000
Features (mean ± SD) [2]						

Disease duration (weeks)	21.9 (±20.2)	14.4 (±7.4) [a]	14.8 (±14.8) [a]	28.8 (±23.6) [b]	17.416	0.000
Mean total number of symptoms	7.6 (±1.2)	6.6 (± 1.3) [a]	8.2 (± 0.9) [b]	7.7 (± 1.2) [c]	25.772	0.000

Note: [1]: using Fisher Exact test; [2]: using One-way ANOVA; [a, b, c]: Post hoc test using Bonferroni method

Depressed mood was found in 100% of patients in the three groups, with irritability presenting in 44.2% of adolescents. Following, concentration difficulties (86%) and feeling worthlessness (83.7%) predominated in adolescents, while loss of energy (100%), psychomotor problems (98.6%), and insomnia (97.3%) were very prevalent in adults; insomnia (100%) and fatigue (95%) were common in geriatric patients. The symptom of interest loss was prevalently reported in all three groups (79.1% for adolescents, 97.3% for adults, and 94.2% for the elderly). Although the symptom was not significantly different between these groups (p=0.14), approximate 60% admitted to having suicidal ideation, with an alarming rate among adolescents (72.1%).

Compared to the other age groups, adolescents were less likely to experience the symptoms of interest decrease, appetite problems, insomnia, fatigue, and anxious distress ($p < 0.05$). The participants aged 18 to 59 years complained of concentration loss more than those aged 60 years ($p = 0.000$). Additionally, this age group exhibited psychomotor retardation more than the others, while adolescents were less likely to suffer from the symptom ($p = 0.000$).

4. DISCUSSION

To the best of our knowledge, a study by Rice et al. is the first study to explore the difference in clinical properties of MDD among 37 adolescents (mean age: 14.2, range: 10-18 years) and 109 adults (mean age: 41.5, range: 26-55 years) [16]. To continue with the valuable findings, the present study compared depressive symptoms between adolescent, adult, and late-life depression, with the appropriate sample size for each group (43, 74, and 121, respectively).

When comparing adolescents and adults with MDD, most of our findings were in line with those of Rice et al. Firstly, depressed mood accounted for 100% for both groups in our study and 94.6% for adolescents and 98.2% for adults in Rice's [16]. In both studies, there were no significant differences between the symptoms of suicidal ideation and worthlessness among these groups, even though suicidal ideation among adolescents was more prevalent than among adults with MDD (72.1% vs. 56.8%) and Rice's (65.4% vs. 50%) [16]. Similarly, suicidal ideation was endorsed as a symptom by 42% and 66% of the youths in a study by Pelkonen et al. [22] and 66% in a study by Kovacs et al. [23]. Contrarily, a randomized placebo-controlled trial study by Gibbons et al. among 708 adolescents and 7517 adults found that the rates of suicide risk at baseline were low for both groups, with the youths still dominating (20% vs. 5%, respectively) [24]. The reason for the difference is the sample size, which in a study by Gibbons et al. was considerably larger compared to Rice's and ours.

However, our study revealed some differences with Rice's study. This study showed adolescents exhibited fewer symptoms than adults with MDD (6.6 vs. 8.2, respectively, $p<0.001$), whereas Rice et al. found there were similar numbers of symptoms (7.5 vs. 7.1, respectively). Our study showed that there was no difference in the symptom of concentration between the groups ($p<0.001$), while the symptom was significantly more prevalent in adolescents than adults in Rice's study (74.3% vs. 38.9%, $p < 0.001$). Furthermore, depressed adults outnumbered depressed adolescents with the symptom of interest loss in our study (97.3% vs. 79.1%, p=0.003), whereas adolescents were dominant in Rice's study (p=0.03). Rice's results reported a low and similar rate of psychomotor retardation for both groups (ranging from 30 to 35%, $p = 0.63$). However, our result revealed that adults with MDD were more likely to exhibit psychomotor retardation than adolescents, with a higher rate of 98.6% and 58.1%, respectively ($p<0.001$). Additionally, some symptoms predominated in adults rather than adolescents, including appetite change (89.2% vs. 41.9%), insomnia (97.3% vs. 72.1%), and energy loss (100% vs. 67.4%) in our study, whereas there was a contrast in Rice's study. The disparities between these two studies might be due to differences in research design. Firstly, Rice's was family- and community-based, while ours was conveniently cross-sectional. Since parents have a crucial role in detecting and understanding the signs of depression [25], parents with depression might recognize their offspring's symptoms easier and more precisely than those without depression. Next, the adolescent participants in the longitudinal study by Rice were assessed at three points during the research period to identify the current episode, whereas this was only done at the point of recruitment in our cross-sectional study. Detecting depression in adolescents is significantly more challenging due to the stigma that keeps the disease hidden and the difficulty in distinguishing between the "normal state" and depressive signs in the age group [26]. As a result, the follow-up method benefits research physicians by allowing them to become familiar with the participants in order to investigate symptoms.

Our study has a particular strength when comparing geriatric depression with adolescent and adult depression. The pattern of results for depressed adults largely remained for the aging patients, except for psychomotor retardation and concentration problems, in which depressed geriatric patients were less likely to exhibit these symptoms compared to adults ($p<0.001$). As a possible explanation of this, these two symptoms appear to be age-related motor and cognitive declines, making it challenging for patients and their caretakers to recognize them [27-29]. The total number of symptoms among the aging was lower than that in adults (7.7 vs. 8.2, $p<0.001$). It is possible that older adults are more

likely to exhibit vegetative and somatic symptoms rather than core depressive symptoms and other symptoms, such as psychomotor retardation and concentration, which are part of the natural aging process and included in diagnostic criteria [18].

The current study also looked at the presence of anxious distress, in which adult and elderly depression were more likely to experience the symptom than adolescent depression (90% vs. 58%, $p<0.001$). In some previous studies, anxious distress was endorsed as a specifier with a range of around 50 to 80%, and the existence of the characteristics was significantly associated with the high level of depressive severity and suicidal attempts in patients with MDD [21, 30, 31]. The extremely high rates among adults and older individuals in our findings suggest that the specifier's presence is crucial for assessing the clinical properties of MDD.

Our study has some limitations. To begin with, due to the fact that the sample sizes of the three groups were not equally distributed, with the adolescent group having a relatively low sample size of 43, whereas the sample sizes of adults and older adults were 74 and 121, respectively, the comparison initially appeared not to reflect the significant differences between the groups. Next, since somatic symptoms were reported to be dominant in both depressed adolescents [17] and geriatric patients [18], the study did not assess the whole clinical picture of MDD because it did not include the somatic symptoms. Finally, our study was cross-sectional and conducted at the three mental health facilities, including Nguyen Tri Phuong Hospital, the University Medical Center, and the Mental Health Hospital in Ho Chi Minh City, which was not representative of the Vietnamese population. Future studies will address these limitations.

Conclusion

Except for depressed mood endorsing in all patients, loss of concentration and worthlessness were common in adolescents, while tiredness and insomnia were common in adults and older adults. Interest loss was endorsed in both of the three groups, whereas psychomotor retardation was more common in adults than in the other groups. Suicidal ideation was reported by approximately 60% of patients, with an alarming rate among adolescents (72.1%). Since symptoms vary among age groups, practitioners must adopt individualized strategies and manage patients accordingly. Sufficient awareness might diminish the death rate due to the high occurrence of suicidal ideation, particularly in adolescents.

ETHICAL STATEMENT

This study was carried out in accordance with the latest version of the Declaration of Helsinki. The study design was reviewed by an appropriate ethical committee, and participants' informed consent was obtained after the nature of the procedures was fully explained to them. The study protocol was divided into three small protocols, which were accepted by the Institutional Review Board of the University of Medicine and Pharmacy in Ho Chi Minh City and the Mental Health Hospital and designated 98/HĐĐĐ-ĐHYD, IRB-VN01002, and 177/QĐ-BVTT.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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AUTHORS' CONTRIBUTION

HNYP contributed to conceptual design, data gathering, statistical analysis, the provision of the original draft, and as a corresponding author. TQT, NNTT, and NLBT contributed to conceptual design, data gathering, and the condition of the initial draft. BXM, TAN, PTMC, NTP, and ANP contributed to conceptual design, statistical analysis, and manuscript editing. TTN and NTL supervised the conceptual design, statistical analysis, and final manuscript performance. All authors read and approved the final manuscript.

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