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# The Prevalence of Depression among Nurses Working at Public Mental Health Hospitals in Khartoum State, Sudan

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## ABSTRACT

Depression is a common, high-staff psychiatric condition in a psychiatric hospital. This study assessed the prevalence of depression in nurses with more than one year's working experience in Khartoum State-Sudan Public Mental Health Hospital and looked at their relations with the participants' socio-demographic features. The study used a descriptive cross-sectional research design. It was performed between August and December 2017 in two governmental psychiatric hospitals in Khartoum state. Complete scope samples of 39 nurses were picked. Details of demographics and depression were gathered by questionnaire; the rate of depression was measured by medical measurement of depression (HADS-D) and anxiety. The data analysis was performed with the Statistical Package for Social Sciences (SPSS, version 25). The statistical importance of $P < 0.05$ was taken into consideration. The average incidence of depression was observed in 21 nurses (54%). The study showed a statistically crucial positive correlation between depression and years of experience, 40-hour weekly work, and psychiatric work. Finally, among study subjects, the prevalence of depression is substantial. Therefore, more considerable attention should be paid to this problem in mental health hospitals. Further research is required to broaden awareness on this issue and will help approaches to ensure that the physical and psychological wellbeing concerns of psychiatric patients are met.

**Keywords:** Depression, Nurses, Public Mental Health, Hospitals.

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## INTRODUCTION

Depression is a paramount public health concern, according to the World Health Organization (WHO), depression will become one of the world's three leading causes of disease burden by two thousand and thirty [1]. The second leading cause of poor health and mortality will be the same disorder with two thousand and twenty [2]. Depression is the low mood and activity aversion that can impact the thinking, behavior, feelings, and physical wellbeing of a person [3]. The depressed may feel sorry, anxious, hopeless, worried, helpless, worthless, guilty, irritable, or restless; lose interest in activities that were once pleasurable; loss of appetite or excessive food, difficulty in concentrations, detail recalls and decisions; and may seek suicide or attempt suicide [2-3].

The World Mental Health Survey has shown that 15% of the population in high-income countries are expected to experience life depression, compared with 11% in low and middle-income countries [4]. The community has an unequal distribution of the prevalence of depression, with more in women, the less favored economic groups, and young people [5].

Studies have shown that depression can also be a widespread issue among nurses [5]. In the United States, a survey showed that there was a prevalence of 41% of depressive symptoms in nurses, but another recorded 18% [6]. In France, one third of hospital nurses were found with depressive symptoms [7]. The most significant recorded incidence of depressed symptoms (52.5 percent) was observed in nurses in a general hospital in Taiwan [9]. In Canada, 1 out of 10 nurses experienced depressive symptoms [8]. Depression is one of the three conditions mentioned most frequently by nurses [10]. Among the health workers, psychiatric nurses are the group most susceptible to mental health problems[11] and so the results of a study in Taiwan, which reported a prevalence of 27.7% among nurses in psychiatric hospitals, will probably not be too surprised[11].

Psychiatric nurses reside and deal with emotionally disturbed people and may be incredibly offensive, threatening, unforeseeable and unsafe for themselves or others [12]. Psychiatric nurses therefore tend to have difficulties in obtaining positive results from their work; this in turn may affect their sense of reward [13]. In addition, these nurses are involved emotionally, which is an exhausting and stressful process [14]. Stress, mental and physical fatigue, feeling out of power, and inadequate supervision have been shown at work as a predisposing factor for depression [13].

Because of conditions that show the emotional burden of these mental health nurses at public mental health hospitals[14] and given the fact that depression in non-mental health hospitals is little documented, apart from the study, they don't consider any published studies examining the effect of depression on Sudanese mental health workers.

### Problem Statement

Psychiatric nurses experience a wide range of stressful events, which have resulted from the treatment of abusive, aggressive patients, recurrent relapse, and poor mental health prognosis; and affect several dimensions of nursing life, physical and mental health [15]. In comparison, clinical nurses have a shortage of qualified standing as psychologists control the Sudanese mental health system [16]. The nurses have a marginally socio-economic status and are attached to a socio-cultural pervasive stigma as a psychiatrist or a psychiatric nurse. While psychiatric nurses are more vulnerable to distress, the claim that nurses are physically and mentally stable at all periods without trying to measure

the incidence of psychiatric morbidity of specific difficulty in the workplace is not to blame. The research focused mainly on assessing the prevalence of pain among clinical nurses. Psychiatric nurses are a vulnerable group in depression development [17]. Nevertheless, research in this field are relatively uncommon in general, in the scientist's experience, and in particular in Arabic and Sudanese research, in this sense, there are no attempts to know the prevalence of depression among psychiats, such studies indicate an epidemiologic difference in the incidence of depression among psychiatric nurses in countries. This research aims to test the incidence of depression in public mental health clinics in the state of Khartoum, Sudan.

### Objectives of the Study

This research examined the incidence of depression among Nurses in Khartoum State's public mental health hospitals. Specifically: (1) estimate the prevalence of depression among nurses working in mental health hospitals in the state of Khartoum; (2) identify the combination of participants' socio-demographic characteristics with depression.

## MATERIALS AND METHODS

### Research Design

This is a descriptive cross-sectional hospital-based study. This study was carried out in Khartoum State, the capital and largest city of Sudan, Khartoum State being one of the eighteen states of Sudan, It has the biggest two governmental psychiatric teaching hospital in Sudan (AL-Tigani AL-Mahi mental teaching hospital and Taha Bashar mental teaching hospital).

### Respondents Sampling Criteria and Ethical Consideration

The population of this study was the nursing staff working in AL-Tigani AL-Mahi psychiatric teaching hospital and Taha Bashar mental teaching hospital, the total number was seventy-one. Abdominal, and thoracic, and have no analgesic drug. The following are the inclusion criteria: (1) Nursing staff at Tigani AL-Mahi psychiatric teaching hospital and Taha Baashar mental teaching hospital; (2) Consent to participate in the study; (3) One-year experience in an inpatient psychiatric facility; (4) No mental disorder and treatment history; and (5) Able to complete the questionnaire. Consequently, the following were the exclusion criteria: (1) nursing students, and nursing college staff; and (2) Nurses who are under training. All nurses working in two hospitals were 71nurses. Those available and accessible were 60. Some were excluded because they have less than twelve months experience, others are in their annual leave, a few left abroad. The sample that was exposed to the study and fulfills the inclusion criteria was only 50 participants.

### Data Gathering Procedure

Data were gathered in coordination with the hospital authorities, and the hospital nurses were filed a file of research goals, informed consent and self-administered questionnaires at the time of their residence. Data processing devices have been deployed in the subjects' workplaces during the two transitions (morning and afternoon). The 50 nurses were instructed within two weeks to complete the questionnaires and to return to the investigator. The rate of return was 78%, and 39 questionnaires were returned at last. The completed questionnaires were analyzed and reported in compliance with the given confidentiality codes for study. Acceptance by the Institutional Oversight Board of Khartoum State Ministry of Health, the Study Agency, UMST, and the AL-Tigani AL-Mahi Psychiatric Teachings Board and Taha Bashar Psychiatric Teaching Hospital for this work were the following ethical aspects: the acceptance of the proposal. The purpose statement of the investigation was read by all participants and each received written informed consent. There is also a right to withdraw without deprivation at all times and also to gain knowledge and skills from the researchers.

### Research Instruments

A structured self-reported questionnaire (age, gender, matricularity, education level, change, working hours, and years of experience) provided socio-demographic and other working-related information. The Hospital Anxiety and Depression Scale (HADS) was used for collection of depression data. Initially, Zigmond and Snaith (64) established this self-assessment method for depression. Even if the scale includes 14 questions of multiple choice, there are two sub-scales: anxiety (HADS-A) and depression (HADS-D), of seven things per section. Studies also advocated the usage of HADS-D as an independent indicator for the diagnosis of depression, HADS-A as an independent measure for depressive signs to be identified [23, 25]. Score varies from 0 to 3 per object and the global score is from 0 to 21 for each sub-scale. Growing response was graded on a scale of the Likert form varying from 0 to 3. When measuring the values of the two sub-scales, the increasing the likelihood that the patient may develop an anxiety and/or depression condition, the higher the score [18] is considered. The proposed use of the Hads D subscale is made up of various cut-off points; in the original Hads D psychometric properties, the result obtained should be read as follows: < 8 = no depression; 8 to 10 = abnormal borderline (possible case); 11 to 21 = strange case. However, the literature advises in unscheduled studies, which are not, like the research subjects, legitimately diagnosed with depression: < 8 = normal; > 8 = depressive symptoms [19]. The HADS was chosen because the issue things are simple to grasp, fast to execute and protect. The HADS scale is established as a proactive method to diagnose distress and depression symptoms [20, 21]. In Sudanese society, the Arabic variant of the HADS system has been verified [22]. In the present study, Cronbach 's scale alpha was 0.75, which showed good internal consistency.

### Data Analysis

Data were evaluated using version 25 of the Social Science Statistical Kit (SPSS). Statistical importance has been established at p to 0.05. In order to examine socio-demographic features, concise statistics such as frequency, mean value and standard deviation were used. Participants

have been classified into two groups according to Hads D outcome: depression group I (scoring individuals > 8) and depression-free group II (scoring individuals < 8). The Pearson product-moment association test was used to analyze the connection between the socio-demographic features and the depression score as well as job properties. ANOVA and Independent Sample Test were performed in one way for variables with significant correlations and post-hoc tests. After the group divide, multiple linear regressions were performed to test variables with significant correlations to depression to determine the relative importance of the variables in contributing to the change in the depression score. With regard to the processing of missing data, it was decided, when the participants did not respond to scale objects, that only participants who had not replied 20 percent or more of the items should be omitted from the sample [23]. Given this criterion, for the study of such variables, participants who responded to at least six things for each sub-scale of HADS were held. These participants were excluded for participants who did not respond to just one item in the depression subscale.

## RESULTS

### Socio-demographic Characteristics of the Sample Population

Two third of the respondents were female (71.8%, n = 28). About half of the respondents aged between (31- 40)-years-old (46.2%, n = 18) (SD ±.92). 61.5% (n = 24) were married, 33.3% (n = 13) single and 2.6% (n = 1) divorced, widowed. 61.5 % (n = 24) had obtained a diploma degree while17.9% (n = 7) had obtained a bachelor degree. A total of 46.2% (n = 26) of the respondents worked in a morning shift while third 35.9% worked in rotate shift. Over half 53.8% (n = 53) (SD ±.505) reported working more 40 hours/week and a about third 30.8% (n = 12), 28.2% (n = 11) (SD ± 1.09) of respondents had (7-12), ( >18 ) Years of experience respectively. Two third of participants( 69%,n = 27) worked at Tigani AL-Mahi psychiatric hospital one while third worked at Taha Baashar psychiatric hospital (31%,n = 12). Half of the participants were normal (46.2%,n =18), third of the participants were abnormal case (probable case) of depression (33.3 %, n = 13) and the borderline abnormal (possible case) was reported by (20.5 %)(n = 8). According to the cut-off points identified in the analysis of the data it was observed that 46.2 percent of the interviewed people were classified as "no depression;" 20.5 percent were abnormal boundaries of disease (possible case) and 33.3 percent were an abnormal case.

### Bivariate Correlations

**Table 1: Distribution of bivariate correlations between participants profile and depression**

| Variables | bivariate correlations | Hads_D | Gender | Age | Marital status | Education level | Experience | Shifts | Working hours | Hospitals |
|---|---|---|---|---|---|---|---|---|---|---|
| Hads_D | Pearson Co | 1 | | | | | | | | |
| | Sig | | | | | | | | | |
| Gender | Pearson Co | .110 | 1 | | | | | | | |
| | Sig. | .503 | | | | | | | | |
| Age | Pearson Co | .299 | -.065- | 1 | | | | | | |
| | Sig. | .064 | .695 | | | | | | | |
| Marital status | Pearson Co | .069 | .107 | .352** | 1 | | | | | |
| | Sig. | .677 | .517 | .028 | | | | | | |
| Education level | Pearson Co | -.011- | -.026- | -.084- | -.412-** | 1 | | | | |
| | Sig. | .945 | .875 | .613 | .009 | | | | | |
| experience | Pearson Co | .504** | .199 | .704** | 233 | -.207- | 1 | | | |
| | Sig. | .001 | .224 | .000 | .154 | .206 | | | | |
| Shifts | Pearson Co | .511** | -.008- | .181 | -.092- | -.097- | .435** | 1 | | |
| | Sig. | .001 | .961 | .271 | .579 | .558 | .006 | | | |
| Working hours | Pearson Co | .886** | .106 | .355* | .113 | -.121- | .529** | .109 | 1 | |
| | Sig.) | .000 | .523 | .026 | .493 | .462 | .001 | .508 | | |
| Hospitals | Pearson Co | -.020- | .047 | .237 | -.082- | .117 | -.020- | .000 | -.051- | 1 |
| | Sig. | .904 | .774 | .147 | .622 | .477 | .905 | 1.000 | .756 | |

Table 2 showed a strong association in practice, change form and working period with depression (all p<0.01, 2-tailed). Gender, marital status, educational level and work in hospitals were not significantly linked to depression. Age tended to be an significant predictor to distress (r = 0.064, p < 0.05, 2-tailed).

### Distribution of Participant Socio Demographic Characteristics According to Hads_D Score

**Table 2: Distribution of bivariate correlations between participants profile and depression**

| Variables | Depression score | | | | *p* |
|---|---|---|---|---|---|
| | Non depressed (*n*=18) | (%) | Depressed (*n*=21) | (%) | |
| Gender | | | | | .523 |
| Male (*n*=11) | 6 | 54.5% | 5 | 55.5% | |
| Female (*n*=28) | 12 | 42.8% | 16 | 57.1% | |
| Age | | | | | .323 |
| 20-30 (*n*=9) | 6 | 66.6% | 3 | 33.3% | |
| 31-40 (*n*=18) | 9 | 50% | 9 | 50% | |
| 41-50 (*n*=8 ) | 3 | 37.5% | 5 | 62.5% | |
| > 50 (*n*= 4) | 0 | - | 4 | 100% | |
| Marital status | | | | | .498 |
| Single (*n*=13) | 7 | 53.8% | 6 | 56.2% | |
| Married (*n*=24) | 10 | 41.1% | 14 | 58.3% | |
| Divorce (*n*=1) | 1 | 100% | - | - | |
| Widow (*n*=1) | - | - | 1 | 100% | |

Table 2 shows the distribution of depression. Females (57.1 percent) demonstrated distressed compared with their male peers (55.5 percent), but objectively the gap was not important. Depression was more prevalent in a decrease in age of more than 50% (100%) and the smaller 20 to 30 year (33.3%) the observed difference was not significant. A larger number of widows (100 percent) is distressed by 58,3 percent and single by 56,2 percent in comparison to the married couple. However, these observations were not statistically important.

### Multiple Linear Regression Model

**Table 3: Distribution of bivariate correlations between participants profile and depression**

| parameter | B | Std. Error | t | Sig. | 95.0% CI Bound | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Constant | -.679- | .681 | -.998- | .326 | -2.070- | .711 |
| Gender | -.163- | .225 | -.725- | .474 | -.622- | .296 |
| age | -.109- | .180 | -.608- | .548 | -.477- | .258 |
| Marital status | -.122- | .174 | -.700- | .489 | -.477- | .233 |
| education level | .283 | .163 | 1.742 | .092 | -.049- | .616 |
| years of experience | .159 | .156 | 1.020 | .316 | -.159- | .477 |
| shifts | .339 | .124 | 2.734 | .010 | .086 | .593 |
| working hours | 1.118 | .226 | 4.938 | .000 | .656 | 1.581 |
| hospitals | -.153- | .220 | -.697- | .491 | -.603- | .296 |

Notes: # Reference category. Computed using alpha = 0.05 (2 tailed). R squared = 0.703 (Adjusted R Squared = 0.624).

Table 3 results are the products of the linear model extended. There was a significant association between two variables (1: type of shift; 2: worktime) and the depression (all ps < 0.05), with an intercept (s) of 0.679-, se = -0.681, p = 0.087, 95 percent c -2.1- to 0.711. The adjusted r squared is 0.624, which implies that 62.4% of the depression variation can be clarified by the two important factors. No significant correlations between gender, age, marital status, education, job and hospitals were found to be depressed. In the latter, these variables have shown statistical meaning in bivariate analysis: years of experience, shift type, working hours which have demonstrated a positive association with a prevalence of depression among psychiatric nurses. The analysis by the multi-model continued the significant link between the shift type, working hours variables and depression, while years of experience and depression did not.

## DISCUSSION

The general psychiatric hospital setting is extremely unpleasant and tiring and may be correlated with elevated rates of distress among psychiatric nurses [24]. Such research indicates that the HADS D subscale has been implemented, a self-assessment method commonly accepted in various countries that assesses the frequency and severity of depression. This research showed a strong incidence of depression among clinical nurses with 50% of participants and participants with a cut-off score of > 8 (55.5% of men and 57.1% of women). Researcher not trace previous studies that used the same HADS_D cut-off score among psychiatric nurse, some studies using HADS_D have reported lower prevalence of depression among nurses abroad such as studies from Londrina-Paraná brazil and Georgia hospitals USA which reported respectively 24.5% and 31% [25, 26, 27]. Despite the good comparability of studies using similar tool, the proportion of psychiatric nurses suffering from depression, is alarming. This result is

consider be high in comparison with other depression studies in general or specialty nurses [28, 29, 30,31]. Nursing profession is a highly stressful job, psychiatric nurses have many stressors affecting general nurses, but it is important to note that psychiatric nurses are subjected to additional stressors that psychiatric nurses often face, including improper preparation, potential suicides, physically threatening patients, difficult or challenging patients, verbal conditions.

It would be difficult to compare the prevalence of depressive symptoms in psychiatric nurses in countries now because measurements of depressive symptoms differ across the studies. If measured differences are not taken into account, the prevalence of depressed symptoms is relatively high among psychiatric nurses. Study in Taiwan [32] shows a prevalence of 27.7% among psychiatric hospital nurses, study by Port-Said [15] showing that over a third of psychiatric nurses suffered a moderate level of depression. Study in southern China [19] found more than a third of the psychiatric nurses have depressive symptoms while the depressive symptoms of Korean and Japanese [21,22] study are higher (37.7 percent) in Korea. Similar research methods or socio-demographic features of subjects can be used to allow this difference between experiments. "In light of these studies, everyone agrees that depression is significant and requires more attention among psychiatric nurses.

In fact, it is reported that 22% of the 50 psychiatric nurses invited to participate in the study did not return the study questionnaire because of the concern that they could disclose their symptoms and that the service recognized them, although at the time of the data collection, it was told that the information provided would be kept confidential. Thus, the participation of these workers could have affected the results suggesting higher rates of depression. Research has consistently shown higher prevalence of depression in women than in men [9, 11, 30] while some show higher prevalence in men. Although female nurses have reported depression symptoms more frequently than male counterparts, our bivariate correlation analysis shows that sex is not an important correlation with the Generalized Linear Model. Since the study professionals, mainly women, suggest the difference between the depression rates in men and women can reflect behaviors based on the knowledge of the sexual roles and learnt impotence, and socioeconomic stresses can result in women's depression.

A higher incidence of depression was associated with early retirement and late middle age in both men and women [30]. This study found that a more common depression occurred in the older (100%), the middle-aged (62.5%) and declining age groups, as shown in Tables 1 and 5. Other studies however showed the opposite that depression affects the younger groups of nursing professionals at a larger age [15,16]) However, no association with age has been shown here. This study, together with a study in Hong Kong, showed no association between age and depression (coefficient of correlation = 0.848 of Spearman) (71)). The results were not consistent with studies (15,62), which showed a link between age and depression p= (0,007) In addition, increased age was insignificantly linked to decreased depression [29].

Increased prevalence of depression in women who have lost husbands by being widowed, divorced or separated [12] has been documented. In this analysis, a greater proportion of married widows (100 percent) were 58.3% and single widows were depressed (Table 1 and 5). The absence of someone who is trustworthy is a vulnerability factor to depression (5), while marriage was stated to serve as a protective effect on depression [18]. Another study shows that marriage is a significant factor in developing depression and stress among nurses [19]. The observations were not significant in this study.

Depression has been associated with a higher incidence of higher-educated nurses such as training, master's degree or doctorate [21]. In comparison to other research, the opposite was shown by the higher prevalence in the low degree of training [24, 25]. Given these findings, most psychiatric patients with lower rates of schooling (Certified Nurses, Certificate Nurses) were discouraged (75%, 55,8%, respectively). In fact, we found in this analysis that the higher education class had the lower depression levels. There is no essential partnership between them. This can be demonstrated by the sense of self-confidence and increased self-esteem that schooling provides.

Studies showed a substantial positive correlation between frequent work of depressive symptoms [26, 27] Night shifts, in particular, have higher levels of depression [28]. Other studies have shown the opposite that no link between depression and shift [29] is present. However, the association of depression and type of shift was significant in this study. The findings of this study also found that nurses allocated to revolving hours, indicating frequent variations from morning, night and evening, have a greater degree of distress than others. In addition, nurses found the night shift exhausting and boring and then sleeping after each shift, feeling dormant during the next shift.

Regarding the association of depressive symptoms with working hours, weekly burdens are a key predictor of the mental health of nurses in our fully adapted linear regression model. Nurses working long hours every week often have higher HADS D rates than those working lower hours a week. Although this differed from another nursing study, [49] no correlation between the symptoms and number of hours worked throughout the week showed. This study showed statistical importance for the participants of the study. The results of studies [16, 17] confirming that the relationship between longer working hours and depressive symptoms was significantly positive. Hospital managers and other personnel responsible for the coordination of health services will closely analyze the beneficial connection between operating hours (more than 40 hours a week) and daily rotational shifts and depressive symptoms. For years of experience, there is an important link between stress and how many years psychiatric nurses have spent working. Our sampling results showed a high prevalence of depression (88.8% and 72.7%) among nurses, respectively (13-18 and > 18) years of experience. Some of the studies did not mention the years of depression work but daily working time [16, 17], while other studies found no important link between depression and years of experience [12,14,15]. While the Brazilian study found that the predictive factor of

depression among nurses in the time of employment [29]. The general linear regression did not demonstrate that psychiatric nurses had spent many years employed, given their strong and meaningful relationship ($r = 0.504$, $p = 0.001$).

From this research, years of experience with nurses have been shown to have an effect on their Hads D score. The numerous comparisons using Bonferroni showed that nurses who had 1-6 years of experience differed greatly from others who had more years of 7-12,13-18 and more than 18 years of experience. The stress was variable in relation to the type of shifts among nurses; the multiple comparisons with Scheffe found that psychiatric nurses with regular morning shifts had lowest scores whereas nurses with rotational shift work had the highest scoring. Unlike previous study [14,15,16], nurses working at night shifts are the most susceptible to high depression.

## CONCLUSION

The study provides a clear picture of the 54 percent prevalence of depression in public psychiatric hospitals. The report indicates that more years have been expended in troubled mental facilities. Age, race, marital status, employment are characteristics of this demographic that have little correlation with depression. Education Level Furthermore, the results of this study show that the psychiatric nursing depression is affected by working a rotation, working for more than 40 hours per week.

### Recommendations

The following are the recommendations and practical implications of the study: (1) Medical systems need to be more involved with physical and mental health psychiatric nurses; (2) Clinical nursing professionals can provide nurses with essential information on the prevalence of depression and confidential treatment options; (3) Screening and early detection of depression should be provided greater consideration in order to maintain a happy, efficient and high quality; (4) Health organizations should try to provide less stressful, respectful places of work in order to support their employees' physical, emotional and mental health proactively and responsively; (5) Further studies on the determinants and effects of depression in Sudanese nurses; and (6) In future research, depression in psychiatric nurses is clearly justified, especially on ways of reducing depression prevalence and effective treatment procedures.

### Strengths and Limitations of the Study

There were numerous drawbacks to this report. Second, the cross-sectional nature is a possible drawback of this analysis, which renders it impossible to relate to the causality of depression. The causal relationship between depression and risk factors identified in the current research can be defined by a follow-up study in the future. Secondly, the number of participants who did not allow the findings to be replicated and that could have affected the results observed, as no significant difference between most research variables was reported, which can be due to the small power of the study involved. Thirdly, because of the nature of the measures exclusively self-reported, the results of this study must be interpreted with caution. However, this study ensures confidentiality through the use of anonymous reports and notes that no sanctions are associated with the replies. The technique will reduce the chance of dishonesty.

## CONFLICT OF INTEREST

None

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