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LETTER TO THE EDITOR

Erratum to and corrections on the article entitled "Assessment of medication knowledge and adherence among patients under oral chronic medication treatment in community pharmacy settings"[1]

ERRATUM

The mean duration of medication utilization was 26.77 ± 40.62 months (range = 3–504 months).

In the four-item (Morisky, Green, and Levine) adherence scale,[2] although scale questions have been incorrectly scored in the published article, the content of the items have been preserved. The following questions were asked, "Do you ever forget to take your medicine?", "Are you careless at times about taking your medicine?", "When you feel better do you sometimes stop taking your medicine?", and "Sometimes if you feel worse when you take the medicine, do you stop taking it?".[2]

Patients with a total score ≥ 4 on the medication-taking knowledge questionnaire was classified as "high medication knowledge." The relevant statistics about the medication knowledge questionnaire in the result section of the original paper has been done according to this classification. This cut-off was particularly selected because of the total medication knowledge score calculated out of seven in the original paper.

In the original paper, the mean medication knowledge scores for female and male gender were 3.95 ± 0.07 and 4.17 ± 0.08, respectively ($p < 0.05$) Table 2.

The following corrections have been used in scoring the medication adherence scale: "Each question was scored as 0 for 'yes' and 1 for 'no'. The total score ranged from 0 to 4, representing low adherence to high adherence.[2]" The newly calculated values are shown as median in Table 1.

We consulted a statistician who identified a better method to improve our study. We applied this positive criticism to our study and updated our conclusion as follows:

1. If the total score was four, the patient was classified as high medication adherent. According to that, 25.2 % of the participants reported high adherence to their medication-taking behavior.
2. A statistically significant and positive correlation exists between the total medication knowledge score on the questionnaire and the total score of medication adherence ($r = 0.258$, $p < 0.001$).
3. In the original paper, the mean value of the knowledge score was 4.84 ± 1.57 out of eight, but in Table 2, the mean medication knowledge scores were given out of seven. The mean value of the knowledge score was 4.04 ± 1.41 out of seven. The mean value of the adherence scale was 2.55 ± 1.22 according to new calculations.
4. The odds ratios, which were greater than 1 for each variable with some changes in predictors associated with high medication adherence and knowledge, were reanalyzed. The odds ratios placed in the results section have been updated as follows:

The characteristics associated with better medication adherence were shown in Table 2. A higher medication knowledge score was found to be significantly associated with medication adherence (OR = 2.80, 95%CI = 1.93–4.05, $p < 0.001$). Participants with a high school degree were more likely to be adherent to their medication regimen compared to those without (OR = 1.79, 95%CI = 1.20–2.67, $p < 0.01$). According to reanalysis, the participants informed of the benefits of long-term medication adherence by their healthcare providers were significantly more likely to score high on the medication adherence score (OR = 2.44, 95%CI = 1.61–3.71, $p < 0.001$) as opposed to previous results in the original paper. Younger age (<65 years), medication usage durations of less than 1 year, and male gender were not found to be significantly associated with high medication adherence ($p > 0.05$).

Table 1. The distribution of participants according to demographic variables and the results of medication adherence scale and medication knowledge evaluation

	Medication adherence score (0–4)		Medication knowledge score (0–7)	
	Median (25–75 percentiles)	*p*	Median (25–75 percentiles)	*p*
Gender				
Female	3.00 (2.00–3.75)	NS	4.00 (3.00–4.00)	$p < 0.05$
Male	3.00 (2.00–4.00)		4.00 (3.00–6.00)	
Education				
≥High school degree	3.00 (2.00–4.00)	$p < 0.001$	4.00 (4.00–6.00)	$p < 0.001$
<High school degree	2.00 (2.00–3.00)		3.00 (3.00–4.00)	
Age				
<65 years	3.00 (2.00–4.00)	NS	4.00 (3.00–6.00)	$p < 0.001$
≥65 years	3.00 (2.00–3.00)		3.00 (3.00–4.00)	
Duration of medication utilization				
≤1 year	3.00 (2.00–4.00)	NS	4.00 (3.00–6.00)	$p < 0.05$
>1 year	3.00 (2.00–3.00)		4.00 (3.00–4.00)	

NS, nonsignificant.

Table 2. The characteristics associated with better medication adherence

Variable	Odds ratio (OR) [95%CI]	*p*
High medication knowledge[a]	2.80 (1.93–4.05)	$p < 0.001$
Patients with high school degree	1.79 (1.20–2.67)	$p < 0.01$
Patients informed of the benefits of long-term medication adherence by their healthcare providers	2.44 (1.61–3.71)	$p < 0.001$

[a]Patients with ≥4 for the total score of medication knowledge questionnaire. $p < 0.05$ indicates a statistically difference between groups.

Table 3. The characteristics associated with higher medication knowledge[a]

Variable	Odds ratio (OR) [95%CI]	*p*
Patients with high school degree	4.08 (2.89–5.77)	$p < 0.001$
Patients <65 years old	3.40 (2.44–4.74)	$p < 0.001$
Male	1.37 (1.02–1.85)	$p < 0.05$
Patients who used medication less than 1 year	1.51 (1.10–2.08)	$p < 0.01$
Patients informed of the benefits of long-term medication adherence by their healthcare providers	2.96 (2.13–4.10)	$p < 0.001$

[a]Patients with ≥4 for the total score of medication knowledge questionnaire. $p < 0.05$ indicates a statistically difference between groups.

The characteristics associated with higher medication knowledge were presented in Table 3. The male group was more likely to have better medication knowledge as compared to the female group (OR = 1.37, 95%CI = 1.02–1.85, $p < 0.05$). After correction in the results of the original paper, the magnitude of OR on the association between knowledge and age has been changed as follows: the younger age group (<65 years old) was significantly associated with high medication knowledge (OR = 3.40, 95%CI = 2.44–4.74, $p < 0.001$). Medication usage durations of less than 1 year were significantly associated with high medication knowledge scores (OR = 1.51, 95%CI = 1.10–2.08, $p < 0.01$). According to our reanalysis, it was also found that participants informed of the benefits of long-term medication adherence by their healthcare providers were significantly more likely to score high on the medication knowledge index (OR = 2.96, 95% CI = 2.13–4.10, $p < 0.001$), which was reported to be the opposite in previous results in the original paper.

Patient knowledge pertaining to the names of all medications taken (OR = 1.92, 95% CI = 1.33–2.78, $p < 0.001$), purpose of medication (OR = 2.49, 95% CI = 1.26–4.93, $p < 0.01$), medication timing (OR = 10.96, 95% CI = 1.49–80.87, $p < 0.01$), medication side effects (OR = 3.20, 95% CI = 2.26–4.54, $p < 0.001$), and attitudes if medication side effects occurred (OR = 3.20, 95% CI = 2.26–4.54, $p < 0.001$) was associated with greater adherence to medication regimens.

Not adjusting for potential confounders when assessing the association between medication knowledge and adherence could be a limitation of this study.

We like to thank Prof. Dr. Donald E. Morisky for his technical and editorial advice regarding the present article. Even though the newly obtained values do not really change the key point of the article, we should have been more careful and respectful. We regret any confusion caused by this oversight.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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