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RESEARCH ARTICLE

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Comparison of Turkish version of the medical outcomes study-HIV health survey with short form health survey-36 in people living with human immunodeficiency virus

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Abstract

Background/aim: Several questionnaires have been developed to evaluate the quality of life (QoL) for people living with human immunodeficiency virus (HIV). The aim of this study was to compare Turkish version of the Medical Outcomes Study-HIV Health Survey (MOS-HIV) with Short Form Health Survey (SF-36) in people with HIV.

Patients and methods: A hundred and 14 patients with HIV were consecutively included. The MOS-HIV and SF-36 questionnaires were applied to all patients at the same day. MOS HIV included 35 items and assessed general health perceptions (GH), physical functioning (PF), social functioning (SF), mental health (MH), bodily pain (P), cognitive functioning, health distress, overall QoL, health transition, role functioning (RF), energy/vitality (EV), physical (Physical health summary score) and mental (MHSS) health summary scores. SF-36 included 36 items and measured eight domains of health concepts including SF, PF, P, RF, GH, role emotional, vitality (V) and MH. Correlation analysis and Bland- Altman plots were used to compare the MOS-HIV and SF-36 questionnaires.

Results: GH, PF, P, RF, EV, SF, and MH domains of the MOS-HIV were significantly correlated with those of SF 36. The agreement between the tests were 91.2% for PF, 92.1%

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for RF and pain, 94.7% for GH, 95.6% for EV, 92.1% for SF and 93.9% for MH.

Conclusion: Turkish version of the MOS HIV showed moderate correlations and agreement with SF 36 suggesting its use as an alternative to SF 36 in assessing QoL in these patients.

KEYWORDS
human immunodeficiency virus, medical outcomes study–HIV health survey, quality of life

Highlights

- Health-related quality of life (HRQoL) of people living with HIV has become increasingly important.
- The Medical Outcomes Study- HIV Health Survey (MOS-HIV) is a widely accepted HIV/AIDS-targeted HRQoL measure.
- Turkish version of the MOS HIV showed moderate correlations and agreement with Short Form Health Survey (SF-36) in people with HIV.
- This study suggests the use of Turkish version of the MOS-HIV as a reliable questionnaire for HIV infected patients.

1 | INTRODUCTION

The number of human immunodeficiency virus (HIV) infected people accessing combination antiretroviral therapy (cART) globally continues to rise in the world. In developed countries, life expectancy of patients receiving appropriate treatment with cART is almost equivalent to those without HIV.[1] However, health-related quality of life (HRQoL) of people living with HIV has become increasingly important. Health-related quality of life is a multidimensional concept that measures clinical, social well-being, psychological and behavioural parameters.

There are various HIV/Acquired Immune Deficiency Syndrome (AIDS)-targeted HRQoL measures. Wu et al.[2] had developed the Medical Outcomes Study- HIV Health Survey (MOS-HIV), which has then become a widely accepted instrument for HIV/AIDS and translated for use in different countries.[3-5] It is a questionnaire consisting of 35-items and evaluating 11 dimensions of HRQoL including general health perceptions (GH), physical functioning (PF), social functioning (SF), mental health (MH), bodily pain (P), role functioning (RF), energy/vitality (EV), cognitive functioning (CF), health distress (HD), overall QoL, and health transition. In addition to these scales a Physical and MH Summary scores (PHSS and MHSS, respectively) were calculated. While PHSS includes PF, P, RF, SF and GH, MHSS includes CF, QoL, MH and EV.[6] MOS-HIV items are calculated with a score between 0 and 100, where higher score indicates better health and HRQoL.[7,8]

On the other hand, the widely used Short Form Health Survey (SF-36) is another questionnaire for assessment of QoL. It has high levels of reliability and validity in different patient groups.[9] It has 36 items that measure eight domains of health concepts including GH, PF, SF, MH, P, role-physical (RF), vitality (V) and role emotional. This scale is also scored between 0 and 100 with higher score representing better functioning and well-being.

The aim of this study was to assess and compare HRQoL scores of the patients living with HIV/AIDS obtained with Turkish version of MOS-HIV and SF-36 questionnaires.

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2 | METHODS

The investigation conforms with the principles outlined in the Declaration of Helsinki. The study was approved by the local ethics committee. All participants gave written informed consent before inclusion.

A hundred and 14 patients living with HIV were consecutively enroled to this study. All patients were older than 18 years and were able to communicate in Turkish fluently. Demographic characteristics including age, gender, duration of illness, smoking (current and former), drug use (including cocaine and heroin), current receipt of a non-nucleoside reverse transcriptase inhibitor (NNRTI)-based or protease inhibitor (PI)-based cART, marriage and employment status, educational degree and laboratory parameters including CD4 cell count and HIV RNA were noted.

The original MOS-HIV questionnaire was culturally adapted and translated from English into Turkish utilising the linguistic validation method derived by the MAPI Research Institute.[10] Linguistic validation included three major phases; the first one was forward translation (from the original language into the target language [Turkish]), the second one was backward translation and the last one was patient testing.

The MOS-HIV and SF-36 questionnaires were applied to all patients at the same day. One interviewer was responsible for this task and she sat near the patients and read questions to the patient while the patient was reading his or her questionnaire. Then the patient marked his or her answer on their copy. MOS-HIV and SF-36 questionnaire were applied in 10 and 7–10 min respectively.

2.1 | Statistical analysis

All statistical tests were performed with a commercially available software programme (Statistical Package for the Social Science 20.0 for Windows, Chicago, IL, USA). All continuous variables were checked for normal distribution by the Kolmogorov-Smirnov test and presented as mean ± standard deviation together with median while categorical variables were expressed as numbers or percentages. Correlation analysis was performed by Pearson or Spearman correlation tests. Agreement between MOS-HIV and SF 36 dimensions were tested by Bland Altman plots. $P < 0.05$ was considered statistically significant.

3 | RESULTS

One hundred and 14 consecutive patients living with HIV (mean age: 45.6 ± 11.4 years, 103 male) were included in the study. The characteristics and laboratory parameters of the patients are represented in Table 1.

Table 2 shows the descriptive statistics for all items of the MOS-HIV and SF-36 while Table 3 shows the correlations between SF-36 and MOS-HIV. The inter-scale correlations of GH, PF, MH, P, and EV were high while most of the remaining domains showed moderate correlations. Bland Altman plots showed acceptable agreement between GH, PF, SF, MH, P, RF, and EV domains of the MOS-HIV and SF 36 (Figure 1). The agreement between the tests were 94.7% for GH, 92.1% for PF and SF, 93.9% for MH, 92.1% for P, 91.2% for RF, and 95.6% for EV.

4 | DISCUSSION

In our study, we assessed the QoL of the HIV people with both MOS-HIV and SF-36 and found that the seven similar domains, namely GH, PF, SF, MH, P, RF, and EV showed strong correlations and agreement suggesting that Turkish version of MOS-HIV might be used as an alternative for SF-36 in patients living with HIV.

People with HIV reported lower HRQoL on all dimensions of SF-36 compared to general population controls.[11] MOS-HIV showed high correlation and discriminant validity compared to SF-12 and SF-36.[12-14] Similar to our study,

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TABLE 1 Characteristics and laboratory parameters of the patients

Mean age (years)	45.6 ± 11.4 (range: 24–74)
Age groups:	
20–40 years old (n - %)	39 (34.2)
40–65 years old (n - %)	68 (59.6)
≥65 years old (n - %)	7 (6.1)
Male sex (n - %)	103 (90.4)
Duration of illness (month)	40.9 ± 50.9 (median: 24)
CD4 cell count	580.9 ± 263 (median: 586; range: 9–1296)
CD4 cell count (n - %)	
<200/mm^3	10 (8.8)
200–500/mm^3	32 (28.1)
>500/mm^3	72 (63.2)
Marital status (n - %)	
Not married (single/divorced/widowed)	73 (64)
Married	41 (36)
Employment (n-%)	
Employed	89 (78.1)
Unemployed	25 (21.9)
Risk factors (n-%)	
Drug usage	4 (3.5)
Blood transfusion	8 (7)
MSM	52 (45.6)
Smoking (n-%)	60 (52.6)
ART group (n-%)	
INSTI	5 (4.4)
NNRTI	51 (44.7)
PI	58 (50.9)
Education (n-%)	
Less than high school	30 (26.3)
High school	25 (21.9)
Collage or above	59 (51.8)

Abbreviations: ART group, antiretroviral therapy group; INSTI, integrase inhibitors; MSM, male sex with male; NNRT, non-nucleosid reverse transcriptase inhibitors; PI, protease inhibitors.

Ion et al.[14] showed that all common sub-domains were significantly correlated with substantial agreement in assigning a HRQoL state. The reliability and validity of this instrument to assess HRQoL of HIV-infected patients has been explored and shown in various populations.[3,5,15,18] However, there are also some concerns for their use in cross-sectional research as they were developed in US and translated into other languages without the input of patients to ensure conceptual and semantic equivalence while similar concerns are also relevant for MOS-HIV.[19]

The SF-36 has four additional items for the measurement of the PF domain, five more items for the RF domains, and one more item for the SF domain than the MOS-HIV, which might result in a higher sensitivity in assessing these domains. However, in our study, we found good correlations for these domains between the Turkish version of MOS-HIV and SF-36. In addition, MOS-HIV measures three more domains; namely CF, HD and overall QoL that are

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TABLE 2 MOS HIV and social functioning (SF) 36 domains and summary scores

	MOS-HIV			SF-36			
Item	Mean ± SD	Median	Min-Max	Item	Mean ± SD	Median	Min-Max
GH	53.7 ± 25.2	50	0–100	GH	59.8 ± 21.1	60	15–100
PF	83.8 ± 21.6	92	8–100	PF	84.8 ± 20.9	95	15–100
SF	80.0 ± 25.8	80	0–100	SF	72.9 ± 27.1	75	0–100
MH	62.5 ± 17.2	68	16–88	MH	69.8 ± 19.0	76	16–100
P	79.4 ± 23.2	89	22–100	P	82.8 ± 20.1	90	12.5–100
RF	83.3 ± 33.7	100	0–100	RF	74.1 ± 38.8	100	0–100
EV	63.3 ± 21.6	65	20–100	V	60.7 ± 23.1	65	10–100
CF	77.3 ± 21.5	80	20–100	RE	69.0 ± 41.1	100	16–100
HD	70.0 ± 25.6	75	0–100				
QoL	63.6 ± 20.8	75	0–100				
HT	57.7 ± 28.2	50	0–100				
PHSS	52.6 ± 9.6	54.8	24.1–64.8				
MHSS	46.8 ± 10.2	49.3	18.1–63.5				

Abbreviations: CF, cognitive functioning; EV, energy/vitality; GH, general health; HD, health distress; HT, health transition; MH, mental health; MHSS, mental health summary score; P, pain; PF, physical functioning; PHSS, physical health summary score; QoL, overall quality of life; RE, role emotional; RF, role functioning; SF, social functioning; V, vitality.

TABLE 3 Inter-scale correlations between SF-36 and MOS-HIV

	SF-36							
	GH	PF	SF	MH	P	RF	V	RE
MOS HIV								
GH	**0.763**	0.541	0.529	0.545	0.514	0.513	0.622	0.532
PF	0.403	**0.708**	0.531	0.504	0.406	0.615	0.520	0.512
SF	0.392	0.513	**0.494**	0.308	0.482	0.544	0.336	0.490
MH	0.440	0.480	0.627	**0.695**	0.433	0.458	0.632	0.659
P	0.416	0.491	0.398	0.326	**0.770**	0.453	0.374	0.395
RF	0.285	0.518	0.301	0.228	0.461	**0.573**	0.291	0.327
EV	0.534	0.592	0.630	0.669	0.474	0.565	**0.713**	0.568
CF	0.444	0.369	0.475	0.439	0.410	0.398	0.427	0.568
HD	0.593	0.473	0.542	0.591	0.430	0.366	0.545	0.604
QoL	0.484	0.545	0.517	0.587	0.516	0.515	0.588	0.498
HT	0.325	0.188	0.227	0.284	0.421	0.218	0.292	0.309

Abbreviations: CF, cognitive functioning; EV, energy/vitality; GH, general health; HD, health distress; HT, health transition; MH, mental health; P, pain; PF, physical functioning; QoL, overall quality of life; RE, role emotional; RF, role functioning; SF, social functioning; V, vitality.

not measured by the SF-36. However, these domains may not assess aspects of HIV disease that typify the majority of the persons with HIV disease today.[20]

Our study has some limitations including small sample size and being a single-centre study. Most of the patients were male and the relatively low frequency of female patients might be another limitation. All the patients were taking cART. The HRQoL of HIV/AIDS patients who are not using medication may be different. All the study patients

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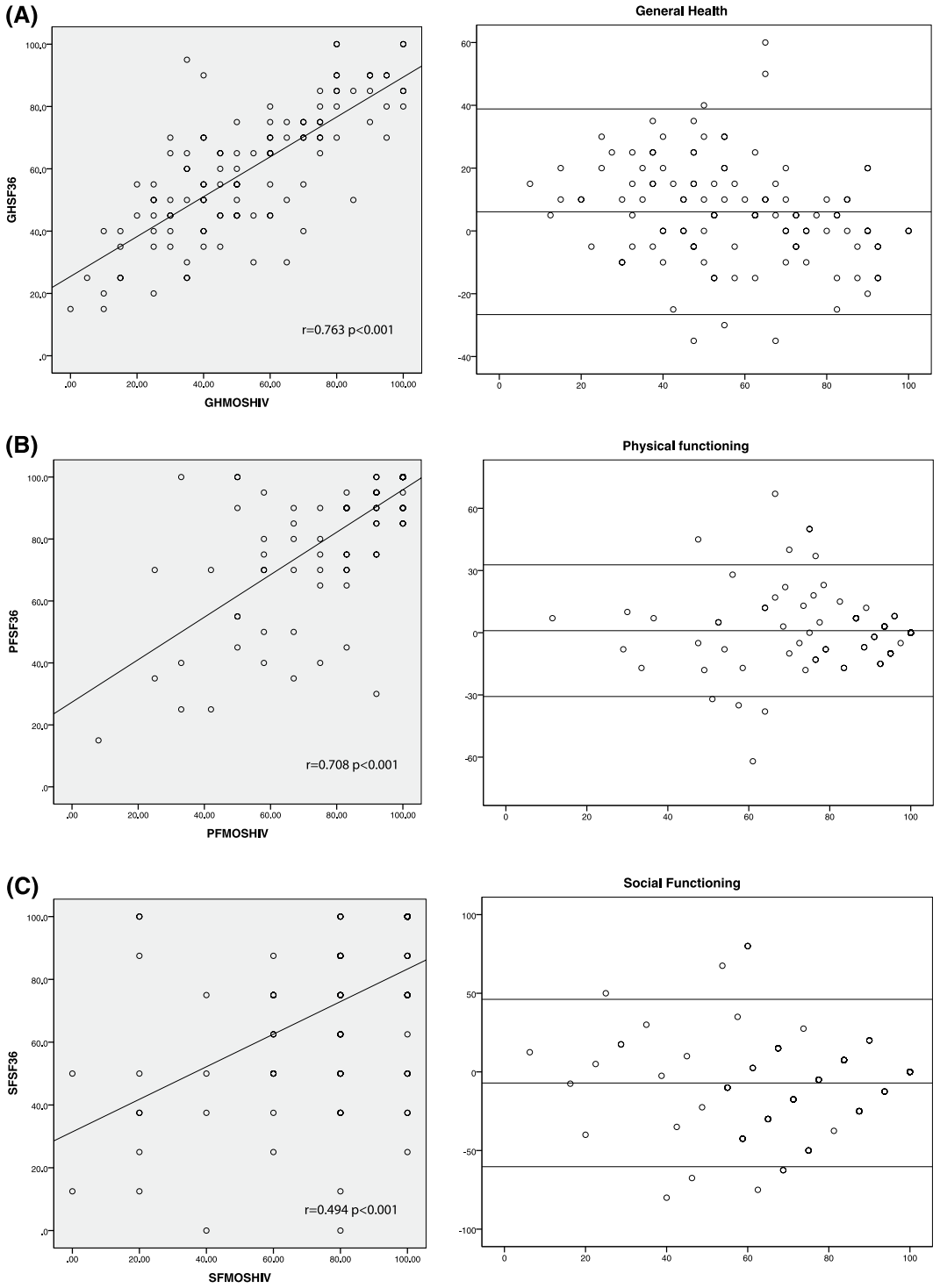

FIGURE 1 A–G, Correlation analysis (left) and Bland-Altman plots (right) for similar domains of MOS-HIV and SF36. [General health (A), physical functioning (PF) (B), social functioning (SF) (C), mental health (MH) (D), Pain (E), role functioning (RF) (F), Energy/vitality (G)]

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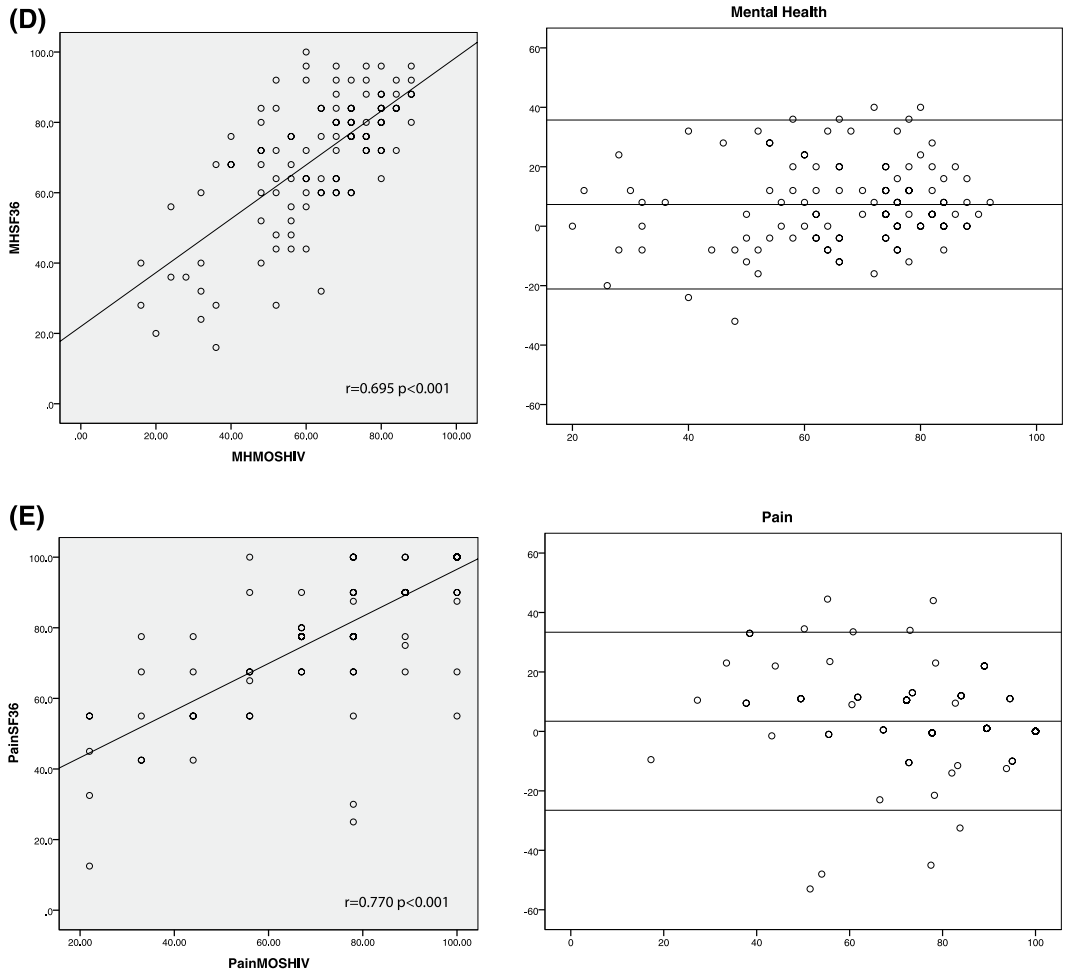

FIGURE 1 (Continued)

were followed by outpatient policlinics and none was hospitalised. Therefore, the validity of MOS-HIV should be tested also in hospitalised patients.

5 | CONCLUSION

Our study showed that Turkish version of the MOS HIV was successfully adapted for people living with HIV in Turkey. MOS-HIV had acceptable agreement for determining HRQoL of Turkish patients living with HIV suggesting that the Turkish version of the MOS-HIV is an applicable and reliable questionnaire for HIV infected patients as compared with SF36. In clinical practice, these questionnaires are easy to apply and get ideas about HRQoL of HIV/AIDS patients and may guide providers in the management of these patients.

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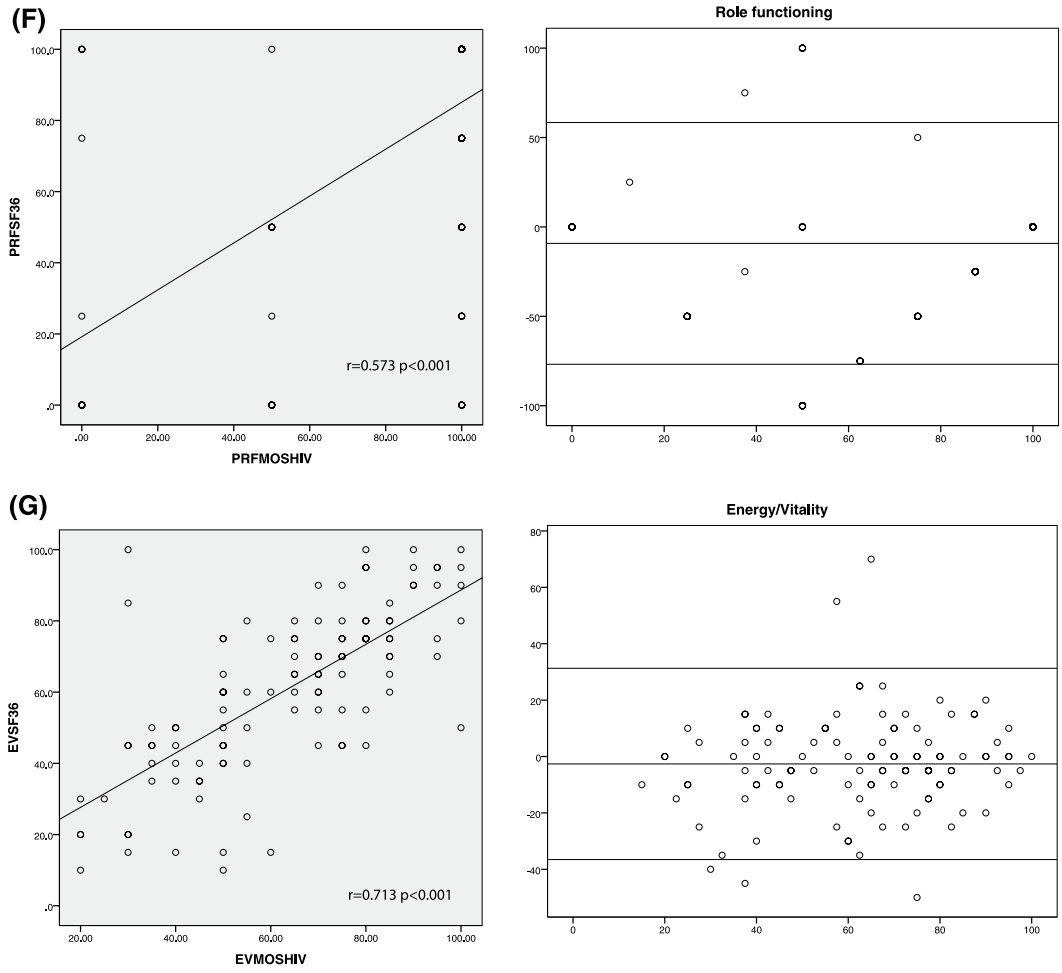

FIGURE 1 (Continued)

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CONFLICT OF INTEREST

The authors declared no conflict of interest.

ETHICS STATEMENT

The investigation conforms with the principles outlined in the Declaration of Helsinki. The study was approved by the local ethics committee (Marmara University School of Medicine Ethics Board). All participants gave written informed consent before inclusion.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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