

The Impact of Dietary Supplements (Vitamin B12, Vitamin D, Magnesium) on the Health Related Quality of Life (HRQOL) of Users in Edessa, Northern Greece. Results from a Real-World Evidence (RWE) study

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Background

The use of dietary supplements has seen a leap in recent years (1). It is also known that a person's quality of life can be affected significantly by vitamin and mineral deficiencies. The necessity of using dietary supplements as well as their possibly favorable effect on the health related quality of life of the users can give new perspectives in the prevention of deficiencies and diseases and also contribute to the saving of health system resources (2).

Objective

This study aimed to assess the effect of targeted supplementation with vitamin D, vitamin B12, and magnesium on health-related quality-of-life outcomes among adults living in the Municipality of Edessa, Northern Greece.

Methods

A total of 114 anonymous questionnaires were completed, incorporating demographic variables and the Greek-validated SF-36 instrument (3). Data were collected at two public health centers in the Municipality of Edessa (Edessa Health Center and Arnissa Health Center) at baseline (prior to supplementation) and after three months of continuous intake of vitamin D, vitamin B12, or magnesium.

Table 1. Demographic Characteristics of the sample

VARIABLE	CATEGORIES	N=114	Percentage (%)
AGE (Years)	18-30	6	5,3%
	31-45	28	24,6%
	46-60	42	36,8%
	61-74	28	24,6%
	> 75	10	8,8%
GENDER	Male	29	25,4%
	Female	85	74,6%
MARITAL STATUS	Married	75	65,8%
	Single	20	17,5%
	Divorced	7	6,1%
	Widower	12	10,5%
EDUCATION LEVEL	None	2	1,8%
	Primary	25	21,9%
	Secondary	42	36,8%
	Tertiary	35	30,7%
	Post graduated/Phd	10	8,8%
EMPLOYMENT	Unemployed	8	7,1%
	Student	4	3,5%
	Farmer	10	8,8%
	Public/private Employee	56	49,6%
	Self employed	5	4,4%
	Businessman/woman	2	1,8%
	Pensioner	26	23%
	Else	2	1,8%
Nationality	Greek	108	94,7%
	Else	6	5,3%
Residence	Urban	66	57,9%
	Rural	48	42,1%
Personal annual Income (euro)	< 5000	12	10,6%
	5000-10000	33	29,2%
	10001-15000	43	38,1%
	15001-20000	18	15,9%
	20001-25000	2	1,8%
	>25001	5	4,4%
Type of Dietary supplement used	Vitamin B12	24	21%
	Vitamin D	48	42,1%
	Magnesium	15	13,2%
	Combination of B12, D or Magnesium	27	23,7%

Results

- The majority of participants were Greek (94.7%) and female (74.6%), predominantly within the 46–60-year age group (36.8%). Nearly half were employed in the public or private sector (49.6%), and most reported an annual personal income of up to €15,000 (77.9%). Among respondents, 42.1% used vitamin D, 21.0% used vitamin B12, 13.2% used magnesium, and 23.7% used a combination of these supplements.
- Following three months of vitamin B12 supplementation, all SF-36 quality-of-life domains—except social functioning and emotional role—showed significant improvement ($p < 0.05$).
- After three months of vitamin D supplementation, all SF-36 domains except emotional role demonstrated statistically significant increases ($p < 0.05$).
- In the magnesium group, significant improvements were observed in the domains of physical role and bodily pain after three months of supplementation ($p < 0.05$).

Results (continued)

Graph 1. Health Related Quality of Life before and 3 months after the use of Dietary Supplements

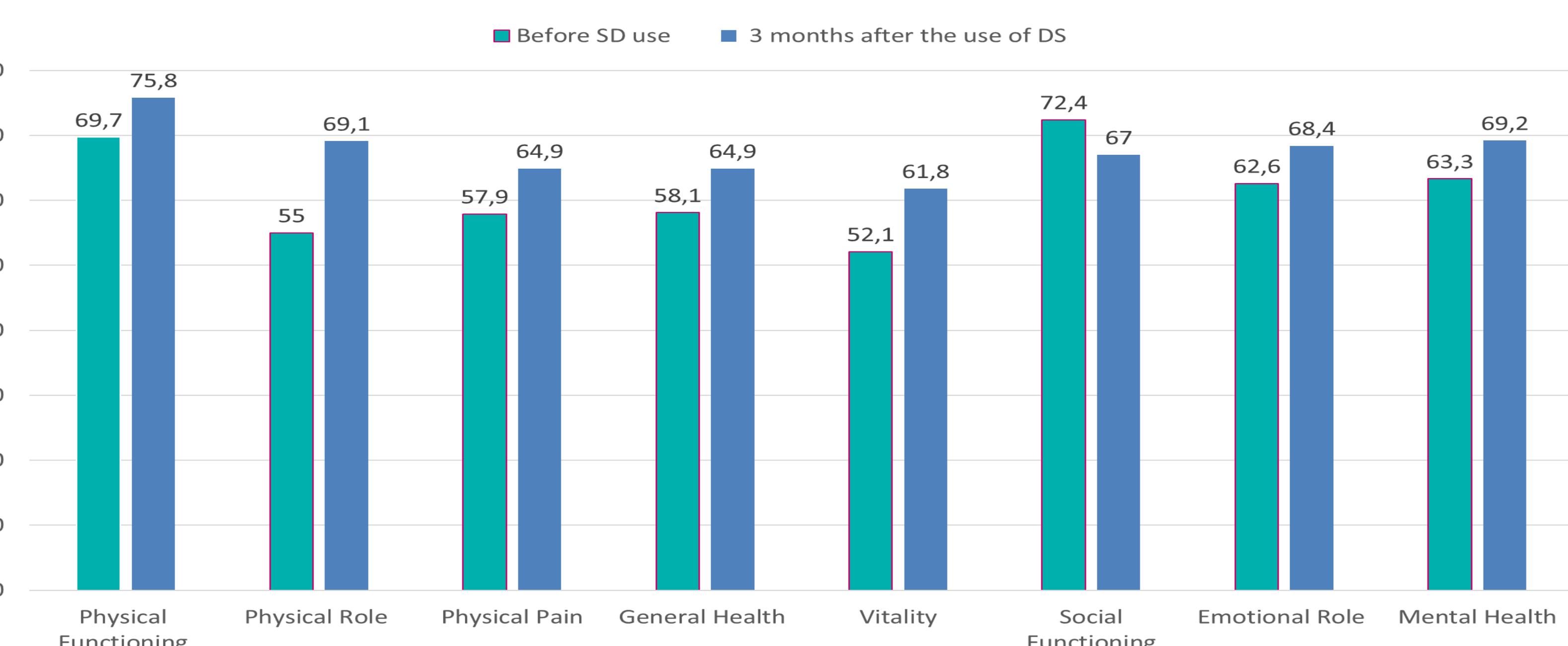


Table 2. Health Related Quality of Life before and 3 months after the use of B₁₂

	Mean	Standard Deviation	P value
Physical Functioning before B ₁₂ use	68,3	30,0	0,006
Physical Functioning 3 months after the use of B ₁₂	74,8	25,7	
Physical Role before B ₁₂ use	54,5	43,6	0,002
Physical Role 3 months after the use of B ₁₂	69,9	33,1	
Physical Pain before B ₁₂ use	60,3	27,3	0,003
Physical Pain 3 months after the use of B ₁₂	69,0	28,1	
General Health before B ₁₂ use	58,2	21,6	0,011
General Health 3 months after the use of B ₁₂	63,4	18,0	
Vitality	51,5	21,5	0,002
Vitality 3 months after the use of B ₁₂	59,4	17,7	
Social Functioning before B ₁₂ use	72,4	26,5	0,100
Social Functioning 3 months after the use of B ₁₂	67,0	28,2	
Emotional Role before B ₁₂ use	63,6	40,6	0,124
Emotional Role 3 months after the use of B ₁₂	71,2	34,9	
Mental Health before B ₁₂ use	59,0	20,7	0,006
Mental Health 3 months after the use of B ₁₂	66,3	19,3	

Table 3. Health Related Quality of Life before and 3 months after the use of vitamin D

	Mean	Standard Deviation	P value
Physical Functioning before vitamin D use	65,1	28,5	0,001
Physical Functioning 3 months after the use of vitamin D	72,1	25,6	
Physical Role before vitamin D use	48,5	43,7	0,001
Physical Role 3 months after the use of vitamin D	64,6	39,2	
Physical Pain before vitamin D use	52,3	28,6	0,008
Physical Pain 3 months after the use of vitamin D	58,6	30,4	
General Health before vitamin D use	53,1	24,1	0,001
General Health 3 months after the use of vitamin D	57,6	22,4	
Vitality before vitamin D use	48,3	24,1	0,001
Vitality 3 months after the use of vitamin D	56,9	22,7	
Social Functioning before vitamin D use	67,2	31,0	0,04
Social Functioning 3 months after the use of vitamin D	61,4	28,8	
Emotional Role before vitamin D use	61,7	42,7	0,203
Emotional Role 3 months after the use of vitamin D	68,2	40,4	
Mental Health before vitamin D use	62,7	23,3	0,001
Mental Health 3 months after the use of vitamin D	69,4	21,6	

Table 4. Health Related Quality Life before and 3 months after the use of Magnesium

	Mean	Standard Deviation	P value
Physical Functioning before Magnesium use	67,3	29,1	0,053
Physical Functioning 3 months after the use of Magnesium	73,3	26,2	
Physical Role before Magnesium use	44,4	41,0	0,001
Physical Role 3 months after the use of Magnesium	66,7	37,3	
Physical Pain before Magnesium use	50,3	28,4	0,009
Physical Pain 3 months after the use of Magnesium	60,4	30,4	
General Health before Magnesium use	60,0	23,7	0,386
General Health 3 months after the use of Magnesium	61,7	22,2	
Vitality before Magnesium use	51,3	19,9	
Vitality 3 months after the use of Magnesium	54,9	21,8	0,115
Social Functioning before Magnesium use	67,7	29,6	0,258
Social Functioning 3 months after the use of Magnesium	63,5	28,9	
Emotional Role before Magnesium use	54,6	43,0	
Emotional Role 3 months after the use of Magnesium	63,9	43,2	0,152
Mental Health before Magnesium use	61,6	19,4	0,096
Mental Health 3 months after the use of Magnesium	65,6	19,7	

Conclusions

All SF-36 quality-of-life domains, except for emotional role and social functioning, demonstrated statistically significant improvements between baseline (prior to supplementation) and the three-month follow-up. Mean scores increased across these domains following dietary supplement intake. Further research is warranted to validate these findings and to establish an evidence base that may inform preventive health strategies and guide policy decisions regarding the provision of dietary supplements, whether through publicly funded programs or private expenditure.

References

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