Supplementary Materials

Knowledge, Attitudes, and Food Supplement Recommendation Practices among Responding Rheumatologists: A Cross-Sectional Survey from the IntegraRE Project

Silvia Di Giacomo [1]*, Raffaella Gargiulo [1], Umberto Agrimi [1], Rosita Laurenti [2], Daniela Marotto [3], Norma Carrozzo [4], Augusto Pastorelli [1], Laura Rossi [1], Paolo Stacchini [1], and Francesca Iacoponi [1]

[1] Department of Food Safety, Nutrition and Veterinary Public Health, Italian National Institute of Health, Viale Regina Elena 299, 00161 Rome, Italy; raffaella.gargiulo@iss.it (R.G.); umberto.agrimi@iss.it (U.A.); augusto.pastorelli@iss.it (A.P.); laura.rossi@iss.it (L.R.); paolo.stacchini@iss.it (P.S.); francesca.iacoponi@iss.it (F.I.)

[2] Rheumatology Unit, Ospedale San Pietro Fatebenefratelli, Via Cassia 600, 00189 Rome, Italy; laurentirosita@gmail.com (R.L.)

[3] Rheumatology Unit, Asl Gallura Olbia, Viale Aldo Moro, 07026 Olbia, Italy; daniela.marotto@tiscali.it (D.M.)

[4] Rheumatology Unit, Asl Bari, Via Caposcardicchio, 70132 Bari, Italy; norma.carrozzo@gmail.com (N.C.)

* Correspondence: silvia.digiacomo@iss.it (S.D.G.)

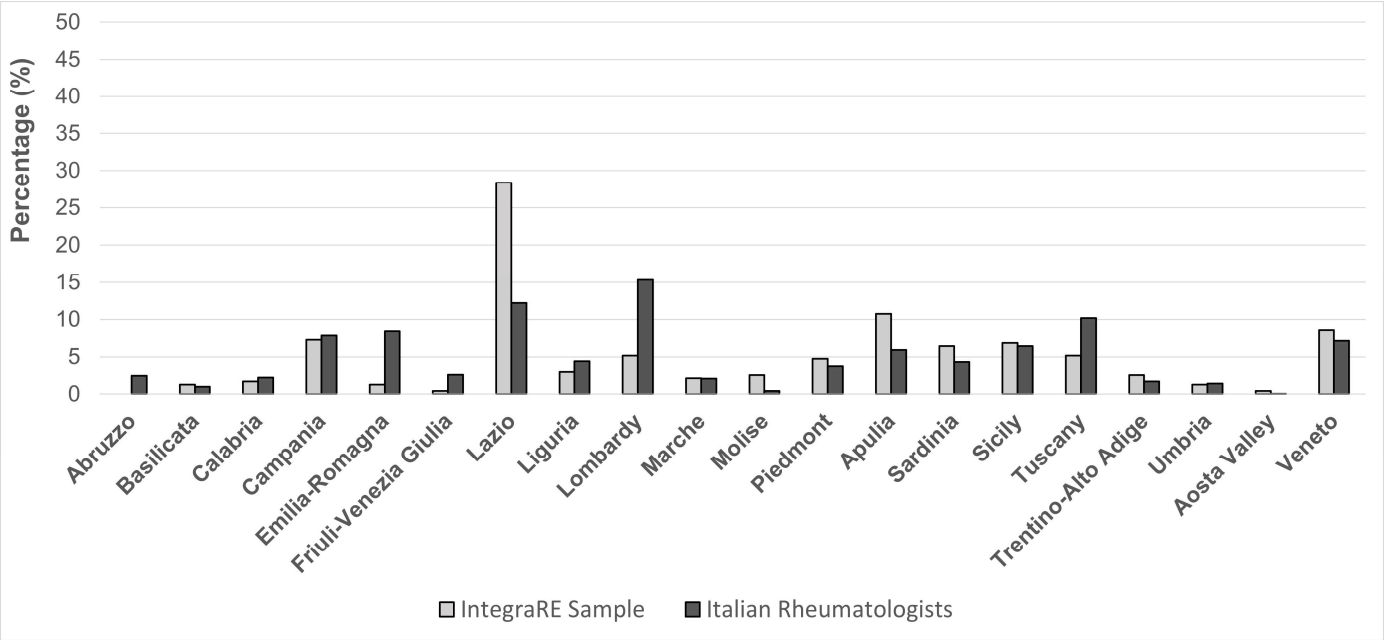


Figure S1. Percentage regional distribution of rheumatologists' place of practice: comparison between the IntegraRE sample and Italian Rheumatologists (ISTAT data updated as of January 2021).

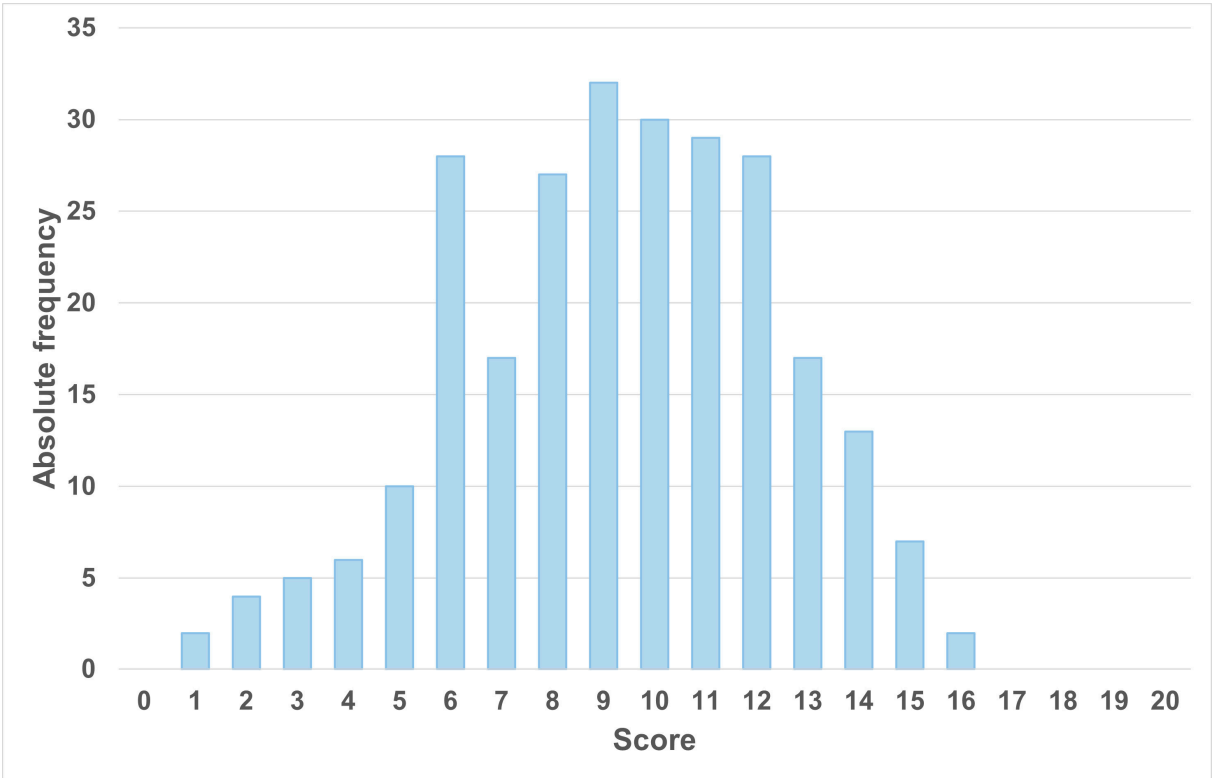


Figure S2. Frequency distribution of the knowledge scores among participating rheumatologists

Table S1. Responses to knowledge questions on food supplements according to supplements use. Data are presented as n/N (%), where n represents the number of respondents who answered correctly and N represents the total number of valid (non-missing) responses for each item.

Knowledge question (Q)	Correct answer	Respondents with correct answers n/N (%)		p value
		Use: No	Use: Yes	
Q1. A food supplement:				
is a food product	*Yes*	45/139 (32.4%)	40/115 (34.8%)	0.786
requires marketing authorization for sale	*No*	22/139 (15.8%)	26/115 (22.6%)	0.225
must be notified to the Ministry of Health for commercialization	*Yes*	86/139 (61.9%)	74/114 (64.9%)	0.712
can only be sold if its efficacy and safety have been demonstrated	*No*	38/139 (27.3%)	36/113 (31.9%)	0.519
may contain vitamins, minerals, and other ingredients	*Yes*	129/140 (92.1%)	103/115 (89.6%)	0.620
Q2. The term "botanical" refers to:				
a plant or herbal preparation used as an ingredient in dietary supplements	*Yes*	72/134 (53.7%)	57/111 (51.4%)	0.808
a supplement containing ingredients of plant origin	*No*	21/128 (16.4%)	14/106 (13.2%)	0.617
Q3. A food supplement is used to:				
prevent the development of diseases	*No*	65/136 (47.8%)	48/111 (43.2%)	0.558
support pharmacological treatment	*No*	17/140 (12.1%)	9/113 (8.0%)	0.378
promote and/or maintain the body's normal physiological functions	*Yes*	91/136 (66.9%)	84/113 (74.3%)	0.255
treat specific diseases	*No*	101/135 (74.8%)	77/112 (68.8%)	0.360
Q4. Food supplements can cause:				
interactions with any drugs and/or foods consumed by the patient	*Yes*	102/139 (73.4%)	81/115 (70.4%)	0.703
adverse effects related to individual patient sensitivity	*Yes*	108/138 (78.3%)	83/114 (72.8%)	0.390
negative effects if taken in excessive doses	*Yes*	105/137 (76.6%)	77/115 (67.0%)	0.116
Q5. Any adverse effects related to the consumption of food supplements:				
must be reported to the competent health authority on a mandatory basis	*No*	32/136 (23.5%)	28/108 (25.9%)	0.777
can be reported to the competent authority on a voluntary basis	*Yes*	63/127 (49.6%)	53/102 (52.0%)	0.824
can be reported voluntarily to the Italian Phytovigilance System	*Yes*	68/128 (53.1%)	46/101 (45.5%)	0.314
Q6. VigiErbe:				
is an online platform for the spontaneous reporting of suspected adverse reactions to products of natural origin	*Yes*	61/135 (45.2%)	56/114 (49.1%)	0.622
is an online platform for reporting suspected adverse reactions to products of natural origin caused solely by interactions with medications	*No*	43/124 (34.7%)	27/99 (27.3%)	0.298
allows reporting by anyone (healthcare professional, citizens)	*Yes*	51/122 (41.8%)	46/100 (46.0%)	0.623

Table S2. Clinical attitudes and practices. Data are presented as n/N (%), where n represents the number of participants reporting the indicated attitude or practice and N represents the number of participants with valid (non-missing) responses for the corresponding item within each knowledge group.

	Positive responses n/N (%)
Clinical assessment and counselling	
Asks patients about supplement use during medical history	250/253 (98.8%)
Reminds patients of the importance of a balanced diet	251/257 (97.7%)
Investigates medical history before recommending supplements	251/254 (98.8%)
Informs patients about possible adverse effects	249/253 (98.4%)
Recommendations and prescribing practices	
Recommends food supplements based on interest	87/223 (39.0%)
Recommends food supplements because of confidence in their efficacy	239/248 (96.4%)
Recommends food supplements because they are considered beneficial for patients	240/245 (98.0%)
Recommends food supplements because they are considered free of adverse effects	174/240 (72.5%)
Recommends food supplements upon patients' request	174/235 (74.0%)
Types of food supplements recommended	
Vitamins and minerals	244/251 (97.2%)
Prebiotics/probiotics	217/235 (92.3%)
Botanicals	181/233 (77.7%)
Other substances with nutritional or physiological effects	193/237 (81.8%)
Clinical practice regarding food supplement use	
Recommends the dosage reported on the product label	243/248 (98.0%)
Believes that the prescribed food supplements provide benefits to patients	249/251 (99.2%)
Management of suspected adverse reactions	
Reports suspected adverse reactions to the Italian Phytovigilance System (VigiErbe)	89/214 (41.6%)
Believed that the adverse reaction was due to food supplement–drug interactions	124/193 (64.2%)
Believed that the adverse reaction was due to inappropriate use (e.g., excessive dosage)	131/191 (68.6%)
Discontinued the food supplement following a suspected adverse reaction	164/206 (79.6%)
Changed the type of food supplement following a suspected adverse reaction	145/201 (72.1%)

Table S3. STROBE Statement—Checklist of items that should be included in reports of cross-sectional studies.

	Item No	Recommendation	Done
Title and abstract	1	(*a*) Indicate the study's design with a commonly used term in the title or the abstract	X
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	X
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	X
Objectives	3	State specific objectives, including any prespecified hypotheses	X
Methods			
Study design	4	Present key elements of study design early in the paper	X
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	X
Participants	6	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants	X
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	X
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	X
Bias	9	Describe any efforts to address potential sources of bias	X
Study size	10	Explain how the study size was arrived at	
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	X
Statistical methods	12	(*a*) Describe all statistical methods, including those used to control for confounding	X
		(*b*) Describe any methods used to examine subgroups and interactions	X
		(*c*) Explain how missing data were addressed	X
		(*d*) If applicable, describe analytical methods taking account of sampling strategy	X
		(*e*) Describe any sensitivity analyses	X
Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	X
		(b) Give reasons for non-participation at each stage	NA

		(c) Consider use of a flow diagram	NA
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	X
		(b) Indicate number of participants with missing data for each variable of interest	X
Outcome data	15*	Report numbers of outcome events or summary measures	X
Main results	16	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	X
		(*b*) Report category boundaries when continuous variables were categorized	X
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	X
Discussion			
Key results	18	Summarise key results with reference to study objectives	X
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	X
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	X
Generalisability	21	Discuss the generalisability (external validity) of the study results	X
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	NA

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at www.strobe-statement.org.