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## Review

# Fostering wellbeing and healthy lifestyles through conviviality and commensality: Underappreciated benefits of the Mediterranean Diet

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## ARTICLE INFO

## Article history:

Received 24 January 2024

Revised 16 March 2024

Accepted 18 March 2024

Available online xxx

## Keywords:

Mediterranean diet

Conviviality

Commensality

Health

Heritage

culture

Joy

## ABSTRACT

Among the often-neglected features of healthy diets, such as the Mediterranean diet, is the preparation and sharing of food, which is (or was) done in a social environment governed by social rules rather than by time constraints. The act of eating is a daily human practice that is not limited to meeting nutritional and energy needs but also involves a constructed social dimension of sharing meals that is part of the process of human civilization and food cultures around the world. In this narrative review, we outline the importance of conviviality in steering part of the health effects of healthful diets, with special reference to the Mediterranean diet. Based on the available evidence, we suggest that public health initiatives (such as nudging to promote conviviality) to improve people's eating and living styles, reduce loneliness, and promote the sharing of meals could improve health. Interventions aimed at directly increasing/improving people's social relationships, networking, and conviviality can—directly and indirectly—improve both psychological well-being and general health.

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## 1. Introduction

1 A healthy and sustainable diet is an important contributor  
 2 to human health [1]; therefore, much research has been de-  
 3 voted to investigating what would be the optimal nutritional  
 4 profile that increases longevity and minimizes morbidity [1].  
 5 The Mediterranean diet is an example of an adequate pro-  
 6 portion of plant-based proteins, healthy fats, fruits and veg-

etables, and high-quality carbohydrates, encompassing a di-  
 verse range of grains, including whole grains, legumes, as well  
 as other complex carbohydrates such as pasta [2,3]. In addi-  
 tion, the Mediterranean diet is sustainable [2] and has been  
 linked with longevity of the inhabitants of the Mediterranean  
 basin, also because of other lifestyle factors such as physical  
 activity (field work and other day-to-day physical activities),

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<https://doi.org/10.1016/j.nutres.2024.03.007>

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Please cite this article as: Elisabetta Bernardi and Francesco Visioli, Fostering wellbeing and healthy lifestyles through conviviality and commensality: Underappreciated benefits of the Mediterranean Diet, Nutrition Research, <https://doi.org/10.1016/j.nutres.2024.03.007>

14 lower exposure to pollution typical of industrial cities [4], or  
15 the use of daytime naps (in Spanish: siesta) [5]. Adherence to  
16 the Mediterranean diet has been positively related to a low  
17 prevalence of chronic degenerative diseases and to psycho-  
18 logical well-being [6,7]; those who have a higher level of adher-  
19 ence to the Mediterranean diet also had lower levels of both  
20 anxiety and depression [8]. Indeed, among the features of the  
21 traditional Mediterranean diet [9] is the preparation and shar-  
22 ing of food, which is (or was) done in a social environment  
23 governed by social rules rather than by time constraints [10].

24 The act of eating is a daily human practice that is not lim-  
25 ited to meeting nutritional and energy needs, but also involves  
26 a constructed social dimension of sharing meals that is part  
27 of the process of human civilization and food cultures around  
28 the world. This phenomenon, also known as commensality,  
29 is defined as the act of eating together, the act of sharing a  
30 meal, with reference to the etymological origin of the Latin  
31 word “*mensa*,” which means living together at the table [11].  
32 Commensality is a term widely used in the literature and can  
33 be defined as the act of eating with other people or, more lit-  
34 erally, eating at the same table [12,13]. The term encompasses  
35 any form of sharing food: from a formal dinner party to a fes-  
36 tive gathering to an ordinary family meal [14]. Across the con-  
37 tinuum of human evolution, communal dining has remained a  
38 deeply rooted social practice. This phenomenon can be traced  
39 back to our primate predecessors that engaged in sharing sus-  
40 tenance. In the early stages of human development, the syner-  
41 gistic pursuit of hunting and the communal preparation and  
42 consumption of meals emerged as a key factor in enhanc-  
43 ing group success and security [12]. Additionally, agricultural  
44 communities have historically demonstrated collaborative ef-  
45 forts ranging from collective farming to the formation of lab-  
46 or groups aimed at facilitating various tasks, thereby ren-  
47 dering them more feasible and enjoyable [15]. Eating together  
48 serves as a multidimensional and intricate mode of expres-  
49 sive and meaningful communication. It transcends mere food  
50 consumption derived from the immediate environment and  
51 instead represents a highly intricate social phenomenon. Its  
52 effectiveness lies in its dual role as both a social tool and a  
53 mnemonic tool [16]. Also, eating together is often preceded  
54 with cooking together at least some parts of the meal and tak-  
55 ing an active part in meal preparation.

56 Conviviality can be distinguished from commensality,  
57 which in some of its more formal forms can also be an ex-  
58 pression of hierarchy and dependence rather than altruistic  
59 and universal reciprocity. In this narrative review, we outline  
60 the importance of conviviality in driving some of the health ef-  
61 fects of healthful diets, with special reference to the Mediter-  
62 ranean diet.

## 2. Conviviality in the Mediterranean diet: Health benefits of eating together

63 Conviviality and pleasure play a role in contributing to food’s  
64 health benefits yet are often overlooked (by the most em-  
65 ployed scores [i.e., the MEDAS [17,18], the Mediterranean Diet  
66 Score [19]]) features of the Mediterranean diet. This emphasis  
67 on the enjoyment of meals distinguishes the Mediterranean  
68 diet from other dietary traditions, categorizing it not only as

“convenient” but distinctly “appetizing.” For this reason, other  
methods of assessing adherence to the Mediterranean diet  
consider conviviality (e.g., the widely used MEDLIFE index,  
which is based on the Pyramid of the Mediterranean Diet pro-  
posed by the Spanish Foundation for the Mediterranean Diet)

[20].  
The Mediterranean Diet Pyramid is interpreted from a total  
of 28 MEDLIFE index entries, divided into 3 blocks, with  
each entry receiving a score of 0 or 1 [21]. Although the sec-  
ond block of the MEDLIFE analyzes 7 questions on Mediter-  
ranean dietary habits, the first block assesses 15 items on the  
frequency of food consumption in the portions provided. Six  
elements related to relaxation, social habits, physical activ-  
ity, and conviviality are evaluated in the third block. Extend-  
ing this perspective, palatability and pleasure are key compo-  
nents that significantly support the promotion of convivial-  
ity within the framework of this diet. In line with this view,  
commensality is recognized as an intrinsic cornerstone of the  
Mediterranean diet. The act of sharing meals around a table  
and eating together has been recognized by various scholars  
as a fundamental social phenomenon that is inseparable from  
the contemporary interpretation of the Mediterranean diet [7].  
The Mediterranean food model is, thus, at least in part charac-  
terized by the cultural value of conviviality, which emphasizes  
the pleasure derived from shared food experiences. Mediter-  
ranean dietary habits refer to following customs and habits  
around meals, such as physical activity, rest, and social habits  
and conviviality (as previously described). In one study [22],  
the authors report a negative correlation between mortality  
risk and adherence to the Mediterranean dietary habits. It was  
discovered that, in comparison to those with lower MEDLIFE  
scores, those with higher scores had a 29% lower risk of all-  
cause mortality and a 28% lower risk of cancer mortality [22].  
Lower risk of death from all causes and cancer was linked to  
independent adherence to each MEDLIFE category. The cate-  
gory that was most closely linked to these reduced risks, as  
well as a lower risk of cardiovascular disease mortality, was  
“physical activity, rest, and social habits and conviviality” [22].

The Mediterranean diet is often praised for its “tastiness,”  
with a strong emphasis using local ingredients and adher-  
ence to traditional recipes [23]. From a public health perspec-  
tive, this diet recognizes that sustainable dietary recommen-  
dations must be inherently enjoyable. This approach stands  
in stark contrast to dietary advice in some countries, for ex-  
ample, where prevailing guidelines often revolve around rigid  
rules, reductions in food groups, and a sense of deprivation,  
with minimal regard for aspects of taste, culinary heritage,  
shared meals, or the simple pleasure of eating [24]. A higher  
adherence to the Mediterranean diet has been associated with  
higher levels of happiness in a cohort of Spanish adoles-  
cents [6], which could be partially attributed to sharing and  
conviviality [6] in addition to the high consumption of fruits  
and vegetables [25,26]. Similarly, a meta-analysis of 22 stud-  
ies reported that higher adherence to a Mediterranean diet  
in Mediterranean and non-Mediterranean countries was as-  
sociated with a lower incidence of a series of mental issues,  
including a 30% reduced risk for depression and a 40% re-  
duced risk for cognitive impairment [27]. Experimentally, shar-  
ing meals can also be an efficacious and accessible treatment  
strategy for the management of depression [28]. These data

129 dovetail with those of Reddy et al., which add further, exper-  
130 imental evidence of the beneficial and even therapeutic ac-  
131 tions of the Mediterranean diet [29].

132 A lunch/dinner table is the place where social bonds  
133 are strengthened, where cultural exchange continues [30],  
134 and where meeting others allows intergenerational exchange.  
135 Sharing meals at the same table is indeed a significant cul-  
136 tural occasion that can foster complementing understand-  
137 ing between generations [30]. These symbolic aspects are par-  
138 ticularly evident in the rituals associated with festivals and  
139 community events [14]. From UNESCO, “Eating together is the  
140 foundation of the cultural identity and continuity of commu-  
141 nities throughout the Mediterranean basin. It is a moment of  
142 social exchange and communication, an affirmation and re-  
143 newal of family, group, or community identity. The Mediter-  
144 ranean diet emphasises values of hospitality, neighbourliness,  
145 intercultural dialogue and creativity, and a way of life guided  
146 by respect for diversity. It plays a vital role in cultural spaces,  
147 festivals, and celebrations, bringing together people of all ages,  
148 conditions, and social classes” [31].

149 The sharing of food and conviviality is particularly evident  
150 in the sacred and ritual dimensions of celebrations, religious  
151 festivals, rites of passage, pilgrimages, and secular collective  
152 celebrations [32]. Festivals are very popular events, an oppor-  
153 tunity to share a meal in an atmosphere of celebration, laugh-  
154 ter, and conviviality [32].

155 Commensality and conviviality, essential aspects of hu-  
156 man dietary practices, manifest in diverse forms across the  
157 globe, reflecting cultural, social, and ecological nuances. In tra-  
158 ditional Mediterranean diets, commensality serves as a cor-  
159 nerstone of social cohesion. Research indicates that shared  
160 meals in this context are associated with increased adher-  
161 ence to the Mediterranean diet, fostering a sense of convivial-  
162 ity that positively influences dietary patterns [24,33]. In con-  
163 trast, the Western diet and lifestyle are often characterized  
164 by fragmented eating patterns, leading to an overall low nu-  
165 tritional quality: the prevalence of individualized, fast-paced  
166 eating habits in Western societies has been linked to a decline  
167 in commensality and diminished conviviality, contributing to  
168 adverse health outcomes [34]. Adherence to a Mediterranean-  
169 type diets is moderate with, unfortunately, a notable reduction  
170 over the past 10 years. Compared with other regions, Euro-  
171 pean countries, primarily those in the Mediterranean, exhib-  
172 ited higher levels of adherence. Geographical analysis showed  
173 that, globally, adherence to a Mediterranean-type diets is cor-  
174 related with socioeconomic class and geographic location  
175 [35].

176 In the Asian context, particularly in Japan, the traditional  
177 dietary model emphasizes communal dining and a variety of  
178 nutrient-dense foods such as fish, rice, and vegetables. Com-  
179 mensality in Japanese culture is intricately woven into daily  
180 life, promoting conviviality and reinforcing social bonds [36].  
181 Epidemiological investigations into the so-called Blue Zones,  
182 regions with exceptional longevity, reveal a common thread  
183 of robust commensality and conviviality [37]. The dietary pat-  
184 terns in these regions, characterized by a high prevalence  
185 of plant-based foods, emphasize the importance of shared  
186 meals and communal engagement, contributing to overall  
187 well-being [37].

### 3. Conviviality and health

188 Fostering appropriate social connection has important impli-  
189 cations for human well-being, conferring protective factors  
190 that are associated with increased survival odds (by 50% as  
191 reported in some studies [38]). The negative effects of social  
192 isolation (exemplified by the COVID-19 lockdowns [39,40]) led  
193 the World Health Organization to declare loneliness a major  
194 health concern, especially among the elderly [41], and the U.S.  
195 Surgeon General published an advisory underscoring loneli-  
196 ness of epidemic proportions in the United States of America  
197 in 2023 [42,43].

198 Conviviality and health are closely related concepts be-  
199 cause social connections and positive interactions with oth-  
200 ers can have a significant impact on overall well-being [44]; it  
201 involves building and maintaining strong relationships, fos-  
202 tering a sense of community, and creating a supportive en-  
203 vironment where individuals can thrive. Conviviality can be  
204 beneficial to health in many ways, including reducing stress,  
205 improving mood, improving nutrient intake, and increasing  
206 feelings of happiness and well-being. Hence, food conviviality  
207 can have a significant impact on health because social interac-  
208 tions/social facilitation and positive experiences around food  
209 can lead to better dietary choices and improved overall well-  
210 being. Although some evidence suggests that eating together  
211 may increase portion size [45,46], the possibility of compensa-  
212 tion of energy intake throughout the rest of the day should be  
213 considered.

214 In 2013, a comprehensive review [47] reported that the  
215 Mediterranean diet was associated with a reduced risk of can-  
216 cer and suggested that conviviality and social interaction dur-  
217 ing meals may partially explain this association, although ex-  
218 perimental evidence is lacking. Indeed, sharing meals with  
219 family and friends was a key aspect of the original Mediter-  
220 ranean diet and may have contributed to its health effects.  
221 A recent study [48] investigated the relationship between the  
222 Mediterranean diet and cardiovascular disease in the Span-  
223 ish population and confirmed that adherence to the Mediter-  
224 ranean diet was associated with a lower risk of cardiovascular  
225 disease and that lifestyle factors, including conviviality, may  
226 contribute to this association.

227 People who have strong social connections and a sense of  
228 community are generally healthier than those who are so-  
229 cially isolated [49]. Social support has been linked to a lower  
230 risk of depression, anxiety, and other mental health condi-  
231 tions, as well as a lower risk of physical health problems such  
232 as heart disease, stroke, and diabetes [49].

233 Of course, what we have discussed here is not specific to  
234 the Mediterranean diet and can be observed worldwide when  
235 strong social bonds are formed at mealtime. In addition, con-  
236 viviality can also promote healthy behaviors such as physi-  
237 cal activity, healthy eating, and getting sufficient sleep. When  
238 people are surrounded by others who prioritize health and  
239 wellness, they are more likely to adopt these behaviors them-  
240 selves. Additionally, when people eat with others, they tend to  
241 consume a greater amount of fruits and vegetables [50], sug-  
242 gesting that increasing fruits and vegetables may displace un-  
243 healthy foods from the diet.

244 In addition, food conviviality can also encourage people to  
245 try new and healthy foods. Sharing meals with others can ex-  
246 pose individuals to different cultural cuisines and promote a  
247 diverse and balanced diet.

248 There is a growing body of research supporting the connec-  
249 tion between food conviviality and health outcomes (Table 1).  
250 For example, Chae et al. [51] found that adults who eat alone  
251 tend to consume fewer fruits and vegetables and more fast  
252 food than those who eat with others.

253 Social context exerts a profound influence on eating behav-  
254 ior. When in the company of others, our dietary choices and  
255 patterns diverge significantly from those when we dine in soli-  
256 tude. Additionally, our food preferences tend to converge with  
257 those of our immediate social network. This inclination can  
258 be attributed to the adaptive nature of conforming to social  
259 norms, which is inherently rewarding. The norms governing  
260 appropriate eating practices are established not only by ob-  
261 serving the behavior of peers but are also shaped by shared  
262 cultural expectations and environmental cues. In this con-  
263 text, social eating norms offer a novel avenue for interventions  
264 aimed at fostering healthier eating habits [52].

#### 4. Family meals

265 As discussed previously, the behavioral and physiological is-  
266 sues associated with social isolation underscore the impor-  
267 tance of connecting with others and maintaining healthy so-  
268 cial bonds [53], including mealtimes. The family is the most  
269 fundamental commensal unit and families that eat meals to-  
270 gether tend to have healthier diets and their members are less  
271 likely to be overweight or obese [54]. Mounting evidence has  
272 shown that the family environment is essential for the proper  
273 development of eating behavior in children and adolescents  
274 [55]. In the context of a child's dietary habits, an increased con-  
275 sumption of fruits and vegetables can be attributed to parents'  
276 preferences for including these food items in family meals,  
277 leading to an upsurge in their intake. This inquiry becomes  
278 particularly significant because children's dietary choices tend  
279 to mirror their overall nutritional intake [56]. According to  
280 the philosopher Byung-Chul Han, the diminishing interindi-  
281 vidual relationships typical of modern industrialized societies  
282 mostly unleash a gratification crisis [57], characterized by in-  
283 dividuals compensating the lack of social relationships/social  
284 connectedness by consuming high-fat, high-salt, and high-  
285 sugar foods.

286 Moreover, the reported positive long-term effects of carbo-  
287 hydrates on mood [58] might be at least in part from the cus-  
288 tomary way of eating them (e.g., pasta, couscous) with family  
289 and friends as opposed to eating on-the-go foods while engag-  
290 ing in other activities.

291 Food conviviality can also promote healthy eating habits  
292 in children. Studies have shown that children who eat family  
293 meals together have a lower risk of obesity [59], better aca-  
294 demic performance, and improved mental health outcomes  
295 [60]. Family meals can also be an opportunity for parents to  
296 model healthy eating habits and encourage their children to  
297 try new foods [61–63]. Children who eat dinner with their fam-  
298 ilies on a regular basis have a lower risk of developing un-

healthy weight control practices, such as skipping meals or  
fasting [64].

299 Furthermore, research has shown that conviviality with  
300 food can promote positive mental health outcomes. A study  
301 found that regular family meals were associated with fewer  
302 symptoms of depression and anxiety in adolescents [59]. So-  
303 cial eating behavior exhibits an association with reduced like-  
304 lihood of reporting symptoms indicative of anxiety, and this  
305 observation aligns with existing literature because several  
306 studies have previously documented an inverse correlation  
307 between partaking in family meals and the manifestation of  
308 anxiety symptoms. Establishing and adhering to family rou-  
309 tines and rituals appears to foster stable family bonds, a cor-  
310 nerstone for the healthy psychological development of ado-  
311 lescents. Moreover, the act of partaking in meals with friends  
312 and family creates a conducive environment for the exchange  
313 of experiences, concerns, and other matters, thereby enhanc-  
314 ing the quality of communication within these social circles.  
315 In line with this concept, reduced communication quality has  
316 demonstrated an association with social anxiety in the ado-  
317 lescent population [65].  
318  
319

#### 5. New forms of conviviality in the digital era

320 The rise of digital technologies and their integration into our  
321 daily lives has led to the emergence of novel modes of social  
322 interaction. Among these, digital commensality stands out as  
323 a multifaceted concept, encompassing the sharing of meals  
324 and dining experiences in digital spaces. Digital technology  
325 has emerged as a new platform for promoting different forms  
326 of commensality that go beyond physical proximity. Food is  
327 now shared in the digital space, and the use of electronic  
328 devices to share meals remotely is increasing. This encom-  
329 passes a wide array of online activities, including virtual cook-  
330 ing sessions, food blogging, live-streamed communal meals,  
331 and culinary exchange within social media platforms. These  
332 activities have given rise to a new dimension of shared dining  
333 experiences, transcending geographical boundaries and cul-  
334 tural divides. Social media platforms have become dynamic  
335 arenas for digital commensality. Here, individuals share their  
336 culinary creations, dining experiences, and culinary expertise  
337 with a global audience. This virtual dining table fosters a sense  
338 of community and cultural exchange, centered around food.  
339 Examples include the exaltation of the aesthetic values of  
340 food, also trivially known as “food porn” and the creation of  
341 virtual communities whose central theme is food. These dig-  
342 ital forms of commensality enable people to connect, share  
343 meals, and engage in eating-related activities remotely [11].

344 Digital platforms such as videoconferencing, social me-  
345 dia, and mobile applications enable people to connect, share  
346 meals, and engage in eating-related activities facilitating din-  
347 ing experiences and eating-related interactions between peo-  
348 ple who are physically separated, as shown by the recent  
349 COVID-19 pandemic and related lockdowns [66]. This includes  
350 activities such as virtual meals, cooking classes, recipe shar-  
351 ing, and online food communities [67].

352 One study aimed to determine how different forms of  
353 social presence might influence sensory and emotional re-  
354 sponses to meals eaten in 3 different commensality condi-

**Table 1 – Main studies on conviviality and commensality.**

Authors, year, and country [reference number]	Population size and age group of study population	Type of study	Method of determining dietary intake or patterns	Outcomes reported	Key findings
Sobal and Nelson, 2003, USA [14]	97,000 rural, suburban and city consumers, including diverse ethnic and class groups	Cross-sectional survey examined the prevalence and patterns of commensality in 1 U.S. county in 1999	Mail questionnaire	Contemporary work-oriented society may lead people to eat alone during the day, but share evening meals with family	Peoples' social worlds appear to be focused on the nuclear family, and family members are also the people they usually eat with
Larson et al., 2007, USA [63]	946 female students and 764 male students in high school classrooms	Survey	Surveys and food frequency questionnaires	Family meal frequency during adolescence predicted higher intakes of fruit, vegetables, dark-green and orange vegetables, and key nutrients and lower intakes of soft drinks during young adulthood	Family meals during adolescence may have a lasting positive influence on dietary quality and meal patterns in young adulthood
Utter et al., 2008, New Zealand [38,54]	3245 ethnically diverse students	Analytical study	Survey	Adolescents who regularly ate family meals were as likely to have less healthy snack foods available at home and regularly eat them as adolescents who do not have family meals	Positive associations between family meals and improved adolescent nutrition
Phull et al., 2015, United Kingdom [24]		Review	Sociological and anthropological literature	Perceived benefits of eating together as well as the social constraints on pleasurable meals	Conviviality—the pleasure of eating together—was recognized as the cornerstone of food culture in the region
Dunbar, 2017, United Kingdom [30]	Panel sample of 2000 adults aged >18 years	Analytical survey	Recall	People who eat socially are more likely to feel better about themselves and to have a wider social network capable of providing social and emotional support. Eating with someone in the evening makes one feel closer to them than eating with them at midday-evening meals at which laughter and reminiscences occur and alcohol is drunk are especially likely to enhance feelings of closeness	Eating together may have health and survival benefits both directly and, through bigger and better social networks, indirectly

(continued on next page)

Table 1 (continued)

Authors, year, and country [reference number]	Population size and age group of study population	Type of study	Method of determining dietary intake or patterns	Outcomes reported	Key findings
Chae et al., 2018, Korea [51]	The final population for this study is 3365 men and 5158 women who are aged 19–64 years	Analytical study	Health survey, nutrition survey, dietary Reference intakes	Many Korean adults are experiencing low diet quality when they eat alone. The number of people who eat alone is increasing along with the changes of lifestyle	People who eat alone have nutrition intake below the recommended amounts
Utter et al., 2018, USA [44]	Sample of parents in the United States ( $n = 889$ , mean age 31 years) that responded to the fourth wave of the Project EAT study in 2015–16	Longitudinal study of dietary intake, physical activity, weight control behaviors, weight status	Population-based survey data	Approximately 50% of parents report frequent family meals	Frequent family meals were associated with higher levels of family functioning, greater self-esteem, and lower levels of depressive symptoms and stress, and greater fruit and vegetable consumption
Ruddock et al., 2019, United Kingdom [45]		Systematic review and meta-analysis	Naturalistic observation methods and diary or ecological momentary assessment methods	Eating with familiar others has a powerful effect of increasing food intakes, relative to eating alone	Social facilitation of eating has evolved as a strategy that ensures the procurement of maximum personal food intake in the context of food sharing
Ferrer-Cascales et al., 2019, Spain [6]	527 high school students (54.5% females; 45.5% males) ranging in age from 12 to 17 years	A large-scale study on Mediterranean diet, well-being, and bullying victimization carried out in schools in the Mediterranean city of Alicante (Spain)	Mediterranean Diet Quality Index for children and teenagers (KIDMED) - The Subjective Happiness Scale (SHS) - The KIDSCREEN-52 questionnaire measuring health-related quality of life	High adherence to the Mediterranean diet was associated with better health-related quality of life and more subjective happiness in adolescents	Protective effects of Mediterranean diet adherence and its relationship with health status and subjective happiness and well-being
de la Torre-Moral et al., 2021, Spain [95]	Sixteen adolescents, 12 participant families	Assessment with Mediterranean diet pyramid score and MEDAS methods	A qualitative descriptive approach was used in this study to describe the perspectives and practices of families regarding conviviality	Families with a less clear pattern of conviviality (i.e., spent less time on family meals, meals were not at the table, had digital distractions, did not enjoy meals through pleasant conversations) have a lower Mediterranean diet adherence	Conviviality is an element of the Mediterranean diet as an intangible cultural heritage, which relates to the pleasure associated with eating together, or a particular attitude toward shared meals
Medina, 2021, Spain [10]		Review	Health, sociological and anthropological literature	Commensality as an interdisciplinary perspective to the very definition of the Mediterranean diet	Conviviality plays in favor of sustainability and nutrition

(continued on next page)

**Table 1 (continued)**

Authors, year, and country [reference number]	Population size and age group of study population	Type of study	Method of determining dietary intake or patterns	Outcomes reported	Key findings
Ruddock et al., 2021, United Kingdom [46]		Review		People eat more when eating with friends and family, relative to when eating alone	Social facilitation of eating reflects a behavioral strategy that optimizes the evolutionary fitness of individuals who share a common food resource
Maroto-Rodriguez et al., 2023, Spain, United Kingdom, USA [22]	110,799 members of the UK Biobank cohort	Prospective	Higher adherence to the Mediterranean lifestyle was associated with lower all-cause and cancer mortality in British middle-aged and older adults in a dose-response manner		The “physical activity, rest, and social habits and conviviality” category was most strongly associated with lowered risks of all-cause mortality and associated with a lower risk of cardiovascular disease mortality
Dallacker et al., 2023 Germany [50]	50 parent-child dyads participated in the trial	Randomized clinical trial	Parent-child pairs had 2 meals in a laboratory setting. In the control condition, they had as much time as usual. In the intervention condition, they had 50% more time than usual	This is known as the “social facilitation of eating”	Family meals are a formative learning environment that shapes children’s food choices and preferences



tions: (1) physically together (“physical commensality”), (2) virtually together (“digital commensality”), and (3) alone (“eating alone”). Participants liked physical commensality the most, followed by digital commensality, whereas they liked eating alone the least. There was no significant difference in overall meal enjoyment between the physical and digital commensality conditions. This study highlights the great potential for improving eating environments by incorporating technological improvements in commensality, especially when physical commensality is not possible [68].

As with its traditional version, digital commensality also has the potential to foster social connectedness, allowing individuals to overcome geographic barriers and connect with others who share similar food preferences, cultural backgrounds, or health goals. This can have a positive impact on mental well-being and reduce social isolation, particularly among vulnerable populations. However, several approaches use technology to connect those who are alone, such as Mukbang, artificial dining assistants, and “skeating,” even if they appear potentially promising, require more suitable research before any strong conclusions can be drawn concerning the merits in terms of health and well-being impact of these digital commensality solutions [69].

Although digital commensality may lack the physical presence of shared meals, it still provides an opportunity for people to engage in collective dining experiences. Virtual cooking classes, recipe sharing, and online food communities can promote healthier eating habits by providing access to nutritious recipes, dietary advice, and social support to make healthier food choices. These platforms can introduce people to new and creative ways to prepare meals that prioritize whole foods, fruits, vegetables, lean proteins, and healthy fats. Digital commensality can influence eating behavior through the presence of others during virtual meals, leading to increased mindfulness and slower eating, potentially reducing the risk of overeating provided that the overuse of telephones and televisions do not distract from the virtual meal.

## 6. Potential mechanisms of action of conviviality on well-being

### 6.1. Sociological hypotheses

The mechanisms of action that link physical activity, conviviality, and happiness with a better prognosis are poorly understood. The state of happiness exerts a direct influence on various biological mechanisms, such as inflammatory responses, blood pressure levels, heart rate, and cortisol levels [26,27]. These effects potentially contribute to explaining the causal relationship between happiness and its impact on health. The very act of eating could trigger the endorphin system and promote bonding, and doing so socially could lead to the same kind of enhanced endorphin effects that have been seen with physical exercise. Conviviality, characterized by joyful and harmonious social interactions, exerts a profound influence on individual and collective well-being. Therefore, it might be expected that people who eat together more often would have larger social networks, experience greater happiness and satisfaction with their lives, and demonstrate increased engage-

ment in their communities [30]. Healthy diets, whose effects on health are established (vide infra) [70], appear to correlate with greater happiness; there are published data linking the intake of fruits and vegetables with greater happiness [25,71]. Other poorly identified determinants of happiness (e.g., social recognition, high overall socioeconomic level) also have an indirect major influence on life expectancy and health: happiness, therefore, would or could simply be a “marker” of conditions with favorable effects on health itself. Finally, social relationships, networking, and conviviality are likely to reinforce each other in a cycle in which a sense of “belongingness” [72] acts as a nudge to support healthier lifestyles [73] and a buffer to support healthy lifestyles (Fig. 1).

### 6.2. Biochemical hypotheses

Anatomically, social rewards are mainly processed in the brain by corticostriatal circuits similar to primary and secondary rewards such as food or money [74,75]. It is also noteworthy that a low frequency of social contacts or a high degree of loneliness have anatomical consequences (e.g., smaller hippocampus and amygdala leading to cognitive impairment as reported by functional magnetic resonance imaging studies with a high number of participants) [76]. Speculatively, shared mealtimes might alleviate such symptoms.

From a biochemical viewpoint, the mechanisms of action underlying the effects of conviviality (and loneliness) on food consumption are still to be elucidated and form part of the “exposome” [4,77]. Theoretically, a homeostatic need for social contact is modulated by reward-related processes that are mostly based on dopamine concentrations [78]. At least in mice, optogenetic activation of GABAergic neurons in the amygdala drives the release of dopamine in the ventral striatum and promotes more social behaviors such as increasing volitional decisions to seek interaction with novel littermates [79]. Moreover, a preliminary, yet sound investigation in humans demonstrated that a period of 10-hour social isolation led to increases in social “craving” following presentation of socially conditioned cues. This behavior closely resembles food craving after fasting [80]. In keeping with the aforementioned, some self-reports of craving for food and social contact correlated with activation of dopaminergic midbrain regions, consistent with reports in mice [79,81].

Further proof of the involvement of the dopaminergic system in social cooperation comes from rodent data on the activation of dopamine neurons during social interactions, which has been found to be increased in the ventral tegmental area [82] and released in the nucleus accumbens during interactions with littermates. In agreement with these data, human functional magnetic resonance imaging studies have consistently shown activation of the striatum in experiments in which rewarding social interactions occur (e.g., cooperative games) [83]. This activation is even stronger when interactions involve an existing social bond (e.g., families and friends during shared meals), likely because it represents an opportunity to further strengthen such connections [84]. Interactions within convivial settings trigger the release of neurochemicals, such as oxytocin and endorphins, associated with social bonding and pleasure. These neurobiological responses



**Fig. 1 – Fostering wellbeing: conviviality, commensality, and diets as cornerstones of healthy lifestyles. Conviviality likely reduces stress via dopaminergic-related pathways [78], thereby increasing fruit and vegetable intake [50]. Eating together greatly lowers cardiovascular risk [49] and should be part of a healthy lifestyle.**

466 are believed to enhance overall well-being and mitigate stress  
467 levels [85].

468 Additionally, positive memories of prior social interactions  
469 with relatives or close friends do impact decisions to pursue  
470 further connection with such individuals [86]. Cogent with  
471 this hypothesis, the traditional yet disappearing habit of eat-  
472 ing together often brings about new opportunities for festive  
473 celebrations.

474 What we have discussed here is being exploited in neu-  
475 romarketing [87], which will greatly help decipher the neural  
476 circuits involved in conviviality and food choices.

## 7. Conclusions

477 A healthy diet and adequate physical activity promote health.  
478 In addition to the mere components of the former (i.e., macro-  
479 [88] and micronutrients [89]), nutrition and physical activity  
480 can facilitate the creation of connecting networks between  
481 people, which, in turn, can promote, as a characterizing and  
482 unifying element of the group, lifestyles aimed at (or per-  
483 ceived as aimed at) the pursuit of well-being. Because mod-  
484 ern society is increasingly characterized by social isolation  
485 and loneliness [90], as highlighted by the U.S. Surgeon Gen-  
486 eral [91] and the World Health Organization [92], appropriate  
487 research should be directed toward less parametric contrib-

488 utors to health, such as conviviality and social interactions.  
489 One paradigmatic, yet not exclusive example is the traditional  
490 Mediterranean diet, which is, unfortunately, increasingly less  
491 commonplace [93,94].

492 Based on the available evidence, which is expected to ac-  
493 cumulate to a greater extent with targeted investigation, it  
494 is reasonable to heighten public awareness and encourage  
495 sharing of meals to improve health and wellbeing. Interventions  
496 aimed at directly increasing/improving people's social  
497 relationships, networking, and conviviality can—directly and  
498 indirectly—improve both psychological well-being and gen-  
499 eral health.

## Author Declarations

The authors declare no conflict of interest.

## CRedit authorship contribution statement

Elisabetta Bernardi: Writing – review & editing, Writing – original draft, Conceptualization. Francesco Visioli: Writing – review & editing, Writing – original draft, Conceptualization.

## Acknowledgment

504 We dedicate this paper to the memory of Dr. Andrea Ghiselli  
505 (CREA-Nut).

## Sources of support

506 This research was partially supported by Barilla G. e R. Fratelli  
507 S.p.A, Parma, Italy, and by PRIN 2022NZNZ8.

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