

FAMILY MEALTIME AGAINST ADOLESCENTS' DRINKING, DRUG USE, AND OTHER RISK BEHAVIOURS. THEN AND NOW

COMIDA FAMILIAR CONTRA LA BEBIDA DE ADOLESCENTES, EL USO DE DROGAS Y OTROS COMPORTAMIENTOS DE RIESGO. ENTONCES Y AHORA

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Abstract

During adolescence, the frequency of family meals may play an important role in both counteracting risk behaviours (e.g., drugs and alcohol use, delinquency, etc.) and in promoting healthy life-styles. *Objective.* The aim of the present review is to chronologically order and discuss evidence supporting or disconfirming family mealtime's effectiveness against adolescents' risk behaviours. *Method.* The present work integrated two search-strategies: scientific databanks strategies and retrospective research on sources. Inter-rater quality assessment was applied to obtain three clusters of literature; pioneering studies about nutritional habits, last decades' evidence, and challenges for future research. *Results.* Effectiveness of family mealtime in preventing adolescents' risk behaviours and in promoting healthy lifestyles and positive outcomes is discussed. *Conclusions.* Open theoretical and methodological questions emerged such as the lack of scientific consensus on how to measure the family mealtime frequency or the need to provide qualitative assessments about the family mealtime experience, among others.

Keywords: Family mealtime, risk-behaviours, adolescence, alcohol, drug.

Resumen

Durante la adolescencia, la frecuencia de las comidas familiares puede desempeñar un papel importante tanto para contrarrestar los comportamientos de riesgo (por ejemplo, consumo de drogas y alcohol, delincuencia, etc.) y en la promoción de estilos de vida saludables. *Objetivo.* El objetivo de la presente revisión es ordenar cronológicamente y discutir evidencia que respalde o desconfirme la efectividad de la hora de la comida familiar contra los comportamientos de riesgo de los adolescentes. *Método.* El presente trabajo integró dos estrategias de búsqueda: estrategias de bancos de datos científicos e investigación retrospectiva sobre fuentes. Se aplicó una evaluación de la calidad entre evaluadores para obtener tres grupos de literatura; estudios pioneros sobre hábitos nutricionales, evidencia de las últimas décadas y desafíos para futuras investigaciones. *Resultados.* Se discute la efectividad de las comidas familiares para prevenir comportamientos de riesgo de los adolescentes y para promover estilos de vida saludables y resultados positivos. *Conclusiones.* Surgieron preguntas teóricas y metodológicas abiertas como la falta de consenso científico sobre cómo medir la frecuencia de la comida familiar o la necesidad de proporcionar evaluaciones cualitativas sobre la experiencia de la comida familiar entre otras

Palabras clave: Comida familiar, comportamientos de riesgo, adolescencia, alcohol, drogas.

Family functioning originates from the balance between family closeness and its capacity to adjust to environmental challenges (Olson, 1993). In the framework of family systems theory (Larner, 2004) the family is a working unit greater than the sum of its parts because all family members are reciprocally influencing each other. This conceptualization interlaces children's behavioural outcomes with family functioning in their daily routine. Zabriskie and Cormick (2001) include family dinners among the family leisure patterns (i.e. family dinner, family games, watching TV together, etc.), that are spontaneous and informal home-based activities. The authors highlight how these activities consolidate family relationships' quality by enhancing family closeness. Moreover, as pointed out by Brown et al. (2019), family meals are associated with an increase in Parent-Child Connectedness (PCC) between the age of 9 and 13 years: children often eating with their parents experience more emotional support and greater communication with them. During adolescence the familial environment constitutes the main socialization source for the human species (Baranowski & Nader, 1986), providing the offspring with behavioural models that will influence their habits throughout life. Literature describes adolescence as the life phase with higher probability for developing risk behaviours, that consist of actions both increasing adolescents' mortality rate and preventing them from achieving a normative transition towards adulthood (i.e., drug use, alcohol consumption, addictive behaviors, reckless driving, delinquency, early sexual behaviors) (Cairns & Cairns, 1994; Kulbok & Cox, 2002; Resnick, Bearman, Blum, Bauman, Harris, Jones et al., 1997). The General Strain Theory (Agnew & White, 1992) and the Strain Control Theory (1969) linked risk behaviours during adolescence with problems in the family environment – for instance, parental divorce negatively impacts adolescents' behaviour, increasing the possibility of boys and girls engaging in risk-behaviour (Orgilés, Carratalá, & Espada, 2015; Agnew & Brezina, 2019).

It is fundamental to note that there is a strong interconnection between the family system, life events and the ongoing psychosocial development in adolescence (Rattay, von der Lippe, Mauz, Richter, Hölling, Lange, & Lampert, 2018; Szapocznik & Williams, 2000). The behavioural plasticity of adolescence can be explained in light of the socio-emotional conflict illustrated in the identity development theory (Erickson, 1959; Marcia, 1966, 1993). Adolescence is in fact

characterized by the need to gain more independence from parents and to affiliate and establish affective bonds with peers (Nickerson & Nagle, 2005; Perasso & Ozturk, 2019; Viejo, Monks, Sánchez-Rosa, & Ortega-Ruiz, 2019). However, such changes do not imply the loss of the socio-emotional relevance of family. Garmezy and Masten (1994) stressed the importance of parents' influence throughout the entire human life circle, especially when it comes to buffering and preventing negative lifestyles. A better psychosocial functioning has been found among adolescents who, along with a positive re-negotiation of their socio-emotional needs between family and friends, are able to maintain solid bonds with their families (Allen, Shockley & Poteat, 2008). Moreover, the quality of the relationship between the adolescent and their parents is negatively associated with unhealthy outcomes (Harrison et al., 2015), such as cigarette consumption and suicide ideation (Gutman, Eccles, Peck, & Malanchuk, 2011; McGee, Williams & Nada-Raja, 2005), as well as underage sexual activities (Parera & Suris, 2004, Pain, 2018), and irregular eating habits (Neumark-Sztainer, Story & Hannan, 2000; Zubatsky, Berge & Neumark-Sztainer, 2015). Family mealtime and family functioning share a profound bond when it comes to the quality of daily life: individuals regularly eating with the family benefit from better communication patterns with the family members (Lawrence & Plisco, 2017), and increased family wellbeing (Ho, Mui, Wan, Stewart, Yew, et al. 2016). Specifically, literature points out that adolescents who attend family dinners more frequently are less likely to develop risk behaviours (i.e. substance use, alcohol use, underage sexual activity, suicidal behaviour, violent behaviours, binge eating, extreme weight loss) (Fulkerson, Story, Mellin, Leffert, Neumark-Sztainer, & French, 2006; Eisenberg, Neumark-Sztainer, Fulkerson, & Story, 2008; Fulkerson, Kubik, Story, Lytle, & Arcan, 2009; Skeer & Ballard, 2013; Perasso, Carone, HBSC Lombardy Group 2014, & Barone, 2019).

This can be explained by identifying family mealtime as a moment of daily mutual exchange, during which parents can extrapolate important – verbal and non-verbal – signals from their adolescent sons and daughters. Family mealtime constitutes the ideal time to listen to the adolescents' problems, to dialogue with them, as well as to observe significant changes in their look and clothes. This shared routine allows parents to keep up with the adolescents' developmental pathways, by improving one fundamental component of parental

monitoring: parental awareness (Dishion & McMahon, 1998; Stattin & Kerr, 2000). This construct implies the parents' knowledge of what the teenagers are doing during their free time, how they spend their money, where they go in their leisure time, and with whom they are friends. Family holidays or other family-shared routines do not allow the same privileged perspective on the daily development of children and adolescents (Fiese, Foley & Spagnola, 2006). Fiese and colleagues (2006) also remarked that sharing family meals, especially during development, symbolically reinforces the perceived sense of belonging and the connection to the family. With an average duration – assessed among different Western countries – of twenty minutes per meal (Fiese & Schwartz, 2008), family meals have also been described as fundamental for intergenerational transmission of traditions, as well as for learning (Larson, Nelson, Neumark-Sztainer, Story, & Hannan, 2009), and to create change in the context of family therapy (Fishel, 2016). Data from CASA surveys (2009, 2010, 2011, 2012) reported that adolescents who attended family meals more frequently (from five to seven times per week) had better school performance than adolescents who did not have this experience with the same regularity. These data encouraged scholars to question the family meal routine not only as a preventative factor against risk behaviours, but also as a crucial variable in promoting long-term positive outcomes for individuals.

However, the influence of family mealtime on adolescents' development needs to be conceptualized in light of last decades' research findings. In fact, research on this construct and its potential encountered substantial changes of perspective, and still many questions remain unanswered. Indeed, literature has begun to raise doubts about the true potential of family meals as confounding variables may impact on its effect (Goldfarb, Locher, Preskitt, Becker, Davies & Sen, 2017; Goldfarb, Tarver, Locher, Preskitt, & Sen, 2015; Goldfarb, Tarver & Sen, 2014). Thus, the present review contributes to deepening the knowledge on the role of family meals in adolescence health, by ordering and discussing both pioneering and contemporary literature. Specifically, this review chronologically orders literature to answer to the following questions:

- I. What are the main findings from pioneering literature (published from 90s to 2010s)?

- II. What are the findings from contemporary research (published from 2010s up to now)?
- III. What are the future challenges for future research?

METHOD

Design

The current literature review implemented a search strategy integrating scientific databanks and cross-reference search (see Figure 1).

Procedure

The methodological choice of literature review addresses the need to detect, summarize, evaluate, and make scientific evidence more accessible for scholars (Petticrew & Roberts, 2008), while integrating it with cross-reference search aims at guaranteeing a comprehensive examination of pioneering and contemporary scientific production. Both search strategies were applied in February 2020. 1). Firstly, the keywords Family meal* OR Family dinner* AND adolescenc* AND risk behavi* OR alcohol use OR addiction OR drugs were inserted in the section "Abstract and Title" to collect sources from Scopus, Pubmed, PsycArticle, Psychology and Behavioural Science Collection. Medical Subject Headings (MeSH) terms were used when possible (e.g., Pubmed) to include keyword synonyms and related constructs. 128 publications were retrieved. 2). Secondly, the keywords *Family meals AND risk behaviours AND adolescence* were inserted in Google Scholar, activating time-range filter for material published between 2018 and 2020 to guarantee a comprehensive retrospective search. References from relevant records ($n=11$) were screened to retrospectively detect sources from literature, identifying $n=70$ publications. Overall, $n=198$ sources were included in the review process. Subsequently, duplication removal, conducted using Mendeley Desktop Version 1.19.4, led to subtract 81 publications.

Inclusion criteria

Title/Abstract screening was conducted by only selecting publications satisfying the following inclusion criteria:

1. Language: only English written publications were included. This criterion was applied to guarantee the analysis of internationally relevant sources.
2. Journal, Dissertation, Chapter or Book field of knowledge: Health and Psychology.

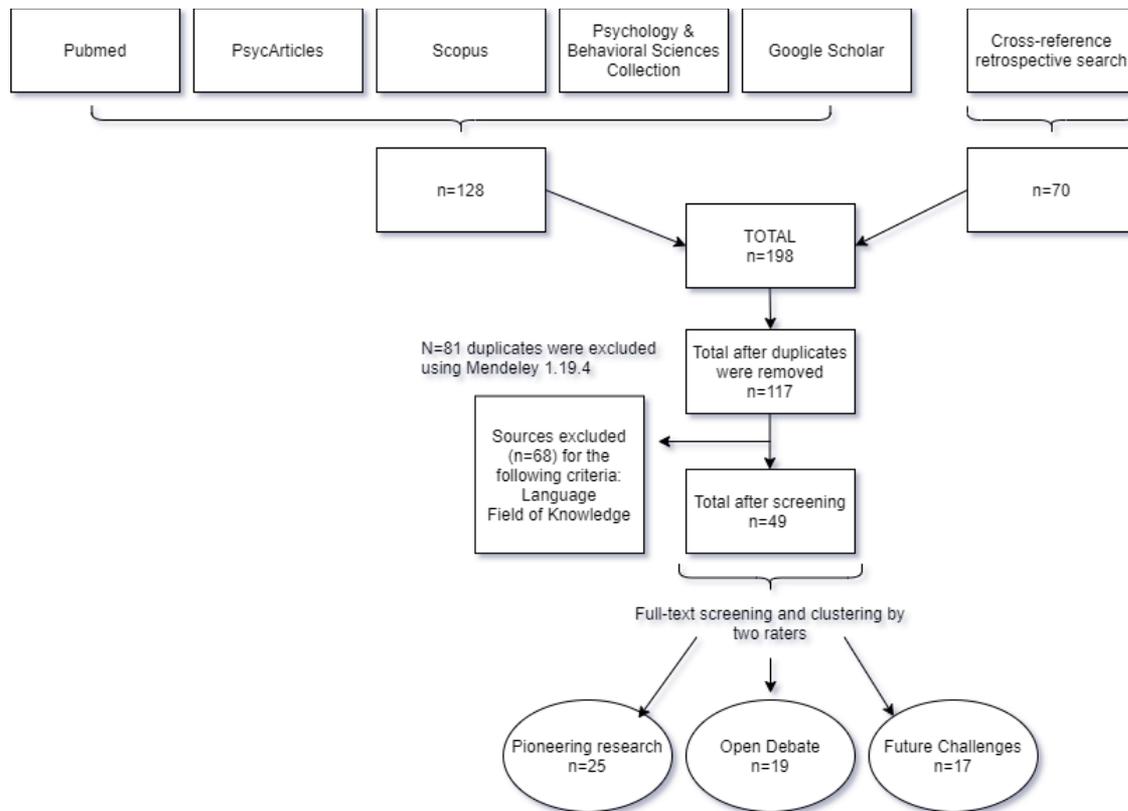


Figure 1. Diagram displaying the implemented search strategy.

Note: One publication could be included in more than one cluster

This criterion was applied to ensure the inclusion of sources from fields of knowledge interested in mental and physical adolescents' wellbeing. At this stage, $n=68$ publications were excluded. Inter-rater evaluation by two raters was performed to cluster the remaining $n=49$ publications. The raters qualitatively analyzed the publications', in terms of:

- i. Clarity of background, aims, methods, results;
- ii. Innovation of the publication;
- iii. Impact on the scientific community.

Three main thematic clusters were identified: pioneering research, contemporary studies (open debate), literature providing questions and challenges for future research.

RESULTS

As displayed in Table 1, the three emerged thematic clusters were heterogeneous: pioneering research represents 51,02% of the total sources ($n=25$), whereas contemporary open-debate studies cluster 38.7% ($n=19$); and literature providing challenges for future research represents 34.7% ($n=17$) (please note: a publication could appear in more than one cluster). Geographically, USA holds the majority of scientific production across the three thematic clusters ($n=37$, 75.5%), followed by UK ($n=5$, 10.2%), Europe ($n=4$, 8.1%), Japan ($n=1$, 2%), Canada ($n=1$, 2%), and New Zeland ($n=1$, 2%). Chronologically, the three clusters cover a time-period ranging from 1985 to 2019. The maximum frequency of scientific production per year was 3 publications, obtained in the following

years: 2006, 2013, 2014, 2015, 2018. The majority of the included sources were scientific papers ($n=41$, 83.5%), while the remaining sources were: reports ($n=5$, 10.2%),

conference proceedings ($n=1$, 2%), book ($n=1$, 2%), and book chapters ($n=1$, 2%).

Table 1. Main features of the selected publications grouped by thematic cluster

Authors	Year	Nation (Country)	Publication Type	Main findings	Cluster
Califano	2005	New York (USA)	Report	Time spent over family dinner is associated with reduced substance use by teens.	Pioneering sources
Bowden & Zeisz	1997	Illinois (USA)	Conference Proceeding	Family dinners' high frequency decreases high-risk adolescent behaviors (i.e., tobacco, alcohol, and marijuana use) and improves school performance.	Pioneering sources
CASA report	2001	New York (USA)	Report	Family mealtime fosters positive connection within the family and improves adolescents' wellbeing.	Pioneering sources
Jonas, Gold, Sweeny & Pothas	1997	New Jersey (USA)	Scientific Paper	DSM-III connects eating disorders with addiction (e.g. cocaine) introducing the idea that inconstant eating habits have a negative influence on health.	Pioneering sources
Filstead, Parella & Ebbitt	1988	Illinois (USA)	Scientific Paper	Substance abuse and binge eating share crucial predictors corroborating the idea that irregular eating habits negatively impact on health.	Pioneering sources
Ennet, Ringwalt, Thorne, Rohbrach, Vincus, Simons-Rudolph et al.	2003	North Carolina (USA)	Scientific Paper	Prevention of substance use needs to consider multiple factors simultaneously, introducing the idea that family meals have to be considered in interplay with other family variables.	Pioneering sources
Turner, Irwin & Millstein	1991	California (USA)	Scientific Paper	Pubertal maturation timing influences substance use by teens corroborating the importance of environmental protective factors.	Pioneering sources
Hoffman	1993	England (UK)	Book	As emerging in family therapy framework, substance use by adolescents' is often influenced by family system functioning.	Pioneering sources
Hemovich & Crano	2009	California (USA)	Scientific Paper	Family structure influences teens' attitude towards substance use: children from single-parent families are more at-risk.	Pioneering sources
Astone & Mc Lanahan	1991	Maryland (USA)	Scientific Paper	Family structure influences teens' school performance: children from single-parent families are less encouraged by parents.	Pioneering sources
Hogan & Kitagawa	1985	Illinois (USA)	Scientific Paper	Family environment and structure shape young girls' attitude towards sexual behaviours: teenage pregnancy is more common in single-parent families.	Pioneering sources
Chilcoat & Anthony	1996	Michigan (USA)	Scientific Paper	Teens experiencing low parental monitoring are more prone to substance use.	Pioneering sources
Selnow	1987	Virginia (USA)	Scientific Paper		Pioneering sources

				Teens from families with low levels of communication and support are more likely to develop risk-behaviours.	
Anderson & Henry	1994	Oklahoma (USA)	Scientific Paper	Family bonding counteracts substance use by teens.	Pioneering sources
Gorman-Smith, Tolan, Zelli & Huesmann	1996	Illinois (USA)	Scientific Paper	Aggressive behaviours are more frequent among teens from family with low cohesion and discipline.	Pioneering sources
Cohen, Richardson & La Bree	1994	New Orleans (USA)	Scientific Paper	Smoking tobacco is less frequent among teens from families sharing many leisure activities together.	Pioneering sources
Child Trends	2010	Maryland (USA)	Report	Family cohesion counteracts internalizing and externalizing problems among adolescents.	Pioneering sources
Benedict, Evans, & Calder	1999	Nevada (USA)	Scientific Paper	Adolescents more at-risk for substance use eat more frequently with peers than with family members.	Pioneering sources + Future Challenges
Griffin, Botvin, Schier, Diaz, & Miller	2000	New York (USA)	Scientific Paper	Regardless of family structure, more frequent family meals are associated with less delinquency among teens.	Pioneering sources + Future Challenges
Fulkerson, Story, Mellin, Leffert, Neumark-Sztainer & French	2006	Minnesota (USA)	Scientific Paper	Frequency of family meals buffers substance use, underage sexual behaviours, antisocial behaviours, unhealthy food-habits, school-related problems, suicide ideations among adolescents.	Pioneering sources + Future Challenges
Franko, Thompson, Affenito, Barton & Striegel-Moore	2008	Massachusetts (USA)	Scientific Paper	Frequency of family meals is associated with a decrease in cigarette smoking by teens.	Pioneering sources + Future Challenges
Compañ, Moreno & Ruiz	2002	Spain (EU)	Scientific Paper	Family mealtime frequency increases adolescents' perceived wellbeing, self-esteem and school success.	Pioneering sources
Fiese, Tomcho, Douglas, Josephs, Plttrock & Baker	2002	New York (USA)	Scientific Paper	Family mealtime frequency increases adolescents' healthy eating habits.	Pioneering sources
Sen	2006	Alabama (USA)	Report	Family mealtime frequency increases adolescents' possibility to reach a regular weight.	Pioneering sources
Molcho, Gabhain, Kelly, Friel & Keller	2007	Ireland (UK)	Scientific Paper	Skipping family meals, in family with low socioeconomic status, is associated with adolescents decreased psychological and physical wellbeing.	Pioneering sources
Gioumouki, Smaili, Antoniou, & Babalis	2018	Greece (EU)	Book Chapter	Family structure (e.g., single-parent families) is associated with school drop-out by adolescents.	Open debate
Zito & De Coster	2016	North Carolina (USA)	Scientific Paper	At risk-family structure (e.g., single-mother, step-parent, and cohabiting) is associated with teenage sex and pregnancy.	Open debate
Mann, Kretsch Tackett, Harden & Tucker-Drob	2015	Texas (USA)	Scientific Paper	Adolescents' delinquency is the result of the interaction between peer deviance, sensation seeking, and lacking parental monitoring.	Open debate
McLaughlin, Campbell, & McColgan	2016	Ireland (UK)	Scientific Paper	Parent-child attachment, parental style, monitoring and communication are protective	Open debate

factors against adolescents' substance use. On the other hand, substance use by the parent constitute a risk factor for the adolescent.

McPherson, Kerr, McGee, Morgan, Cheater, McLean et al.	2014	Scotland (UK)	Scientific Paper	The quality of social relationships (e.g., namely parent-child relationship) prevent internalizing and externalizing behaviours by teens.	Open debate
Berge, Wall, Hsueh, Fulkerson, Larson, & Neumark-Sztainer	2015	Minnesota (USA)	Scientific Paper	Regular family mealtime in adolescence predicts a healthy weight 10 years later.	Open debate + Future Challenges
Miller, Waldfogel & Han	2012	Massachusetts (USA)	Scientific Paper	Regular family mealtime does not predict adolescents' school performance and behavioural outcomes.	Open debate + Future Challenges
Walton, Horton, Rifas-Shiman, Field, Austin, Haycraft, et al.	2018	Canada	Scientific Paper	There is no association between family mealtime and adolescents' regular weight.	Open debate
Hoffman & Warnick	2013	Utah (USA)	Scientific Paper	The protective effect of family mealtime against substance use by adolescents has to be explaining in the light of substance use initiation's timing.	Open debate + Future Challenges
Perasso, Carone, HBSC Lombardy Group 2014, & Barone	2019	Italy (EU)	Scientific Paper	Parental monitoring counteracts boys and girl's alcohol consumption regardless of the frequency of family dinners.	Open debate + Future Challenges
Goldfarb, Tarver, Locher, Preskitt, & Sen	2015	Florida (USA)	Scientific Paper	Other family-variables constitute confuding factors with respect to family mealtime effect in counteracting adolescents' risk behaviours.	Open debate + Future Challenges
Goldfarb, Locher, Preskitt, Becker, Davies, & Sen	2017	Florida (USA)	Scientific Paper	Other family-variables constitute confuding factors with respect to family mealtime effect in counteracting adolescents' risk behaviours.	Open debate + Future Challenges
Skeer & Ballard	2013	Massachusetts (USA)	Scientific Paper	Boys and girls have different patterns of substance use and family meals attendance.	Open debate + Future Challenges
Byrnes, Miller & Schafer	1999	Pennsylvania (USA)	Scientific Paper	Risk behaviour are differently enacted by boys and girls.	Open debate
Barnes, Reifman, Farrel & Dintcheff	2000	New York (USA)	Scientific Paper	Parental monitoring and support influence adolescent's initiation and misuse of substance, with different effects for boys and girls.	Open debate
Tildesley & Andrews	2008	Oregon (USA)	Scientific Paper	Parental alcohol use is associated with adolescent's initiation to alcohol use; parental monitoring mediates between parental alcohol use and girls' initiation to alcohol use.	Open debate
Schultze, Ramo & Brown	2009	California (USA)	Scientific Paper	Boys are more at-risk than girls for alcohol and substance use. This suggest that parents tailor their interventions by considering gender differences.	Open debate
Levin, Kirby, & Currie	2012	Scotland (UK)	Scientific Paper	Frequency of family dinners reduces cannabis use in boys, while it reduces bullying, alcohol and cigarette use in both genders.	Open debate + Future Challenges
Utter, Denny, Robinson, Fleming, Ameratunga, & Grant	2013	New Zeland	Scientific Paper	Controlling for sociodemographic and family related variables, family mealtime frequency predicts adolescents' wellbeing, and negatively associates with cigarette use, binge drinking,	Open debate + Future Challenges

				underage sexual activities, cannabis use, depressive symptoms.	
Fulkerson, Bruening, Berge, Eisenberg, & Neumark-Sztaine	2014	Minnesota (USA)	Scientific Paper	Using media during family mealtime is positively associated with sugar-sweetened beverages and negative associated with vegetables consumption; family using media during meals give less importance to eating together and report less communication.	Future Challenges
Fiese, Foley, & Spagnola	2006	New York (USA)	Scientific Paper	Given their daily routine, family meals symbolically reinforce the connection to the family, more than family holidays and other leisure family activities that occur less often.	Future Challenges
Goldfarb, Tarver, & Sen	2014	Florida (USA)	Scientific Paper	Other family-variables constitute confounding factors with respect to family mealtime effect in counteracting adolescents' risk behaviours.	Future Challenges
Shirawasa, Ochiai, Yoshimoto, Matoba, Sunaga, Hoshino & Kokaze	2018	Japan	Scientific Paper	Girls eating dinner alone are more prone to be overweight or obese during adolescence.	Future Challenges
Asciutto, Lugo, Pacifici, Colombo, Rota, La Vecchia, & Gallus	2016	Italy (EU)	Report	Within the same nation, different prevalence of alcohol use among teens are measured. This report suggests to control for geographic region to study the predictors of adolescents' risk behaviours.	Future Challenges

DISCUSSION

In the present review, the 49 analyzed publications theoretically and empirically support the relationship between family-related variables, especially family mealtime frequency, and behavioural outcomes and wellbeing during adolescence, as pointed out by Ho et al. (2016), Agnew and Brezina (2019), and Brown et al. (2019). In the current review, the thematic cluster of pioneering research stresses out the association between family structure and healthy habits among teenagers, as argued by Rattay et al. (2018). In this sense, a less structured family environment (e.g., single-parent families) seems less able to guarantee constant routines (e.g. family mealtime's regularity) in teenagers' daily life. However, contemporary literature – grouped in the second thematic cluster – highlights the unsolved debate around the true preventative effectiveness of family mealtime against adolescents' alcohol and substance use. Besides evidence from research on psychotherapy and social psychology (Fischel et al., 2016; Lawrence & Plisco, 2017), depicting family mealtime as a catalysator of positive change, research is showing that other family-related variables (e.g., parental monitoring) can buffer

adolescents' risk behaviours regardless of family mealtime frequency (Perasso et al., 2019). Finally, many unsolved questions challenge future research on the issue – as grouped in the third thematic cluster – (e.g., the use of media during family meals, cultural influences over family eating habits, heterogeneity of methods in the assessment of family dinners frequency, the necessity to integrate quantitative measures of family mealtime with qualitative measures). Chronologically, the three thematic clusters cover different time-periods, with partial overlapping. The time-range of pioneering research extends from 1985 to 2010, providing crucial evidence around family mealtime as a specific feature of family functioning and family structure. Pioneering research is also characterized by great enthusiasm around the potential benefit of family mealtime over adolescents' behaviours, wellbeing, and school performance. Such great emphasis does not recur in the contemporary open debate: doubts around the true preventative effectiveness of family mealtime over adolescents' behavioural outcomes were raised by researchers between 1999 and 2018. From 2006 to 2019, many theoretical and empirical questions were raised in the scientific community, challenging future research on deepening family mealtime effects. In the following paragraph the three obtained thematic clusters will be

examined more in depth. For further information about the analyzed publications included see Table 1.

Then: pioneering research beyond the nutritional perspective

From late 90s to the first decade of 2000s, media generated great enthusiasm about shared family mealtime, depicted as a fundamental resource to both counteract and prevent adolescents' alcohol use, underage sexual activities, substance abuse and deviant behaviours (Califano, 2007). The American Psychological Association (APA) defined family meals a crucial resource for promoting adolescents' adjustment (Bowden & Zeisz, 1997). Four years later the National Center on Addiction and Substance Abuse (CASA) promoted the first edition of the event "Family Day - A Day to Eat with Your Children" (CASA, 2001) to sensitize American families and to raise awareness about the importance of adopting a healthy lifestyle since adolescence. According to CASA, eating together with parents could effectively protect teenagers from developing several types of unhealthy behaviours, both long-term and short-term (i.e. alcohol and substance use, early sexual behaviours, aggressive behaviours, etc.).

The pioneering studies initially addressed the lifestyle risks caused by irregular nutrition. Indeed, DSM III identified inconstant eating habits as one of the diagnostic criteria for cocaine addiction (Jonas, Gold, Sweeny & Pothas, 1987), thus creating a theoretical link between substance consumption and mealtime irregularity (Filstead, Parella & Ebbitt, 1988). Since one variable's preventative potential should be considered in interaction with other variables and multiple outcomes (Ennet, Ringwalt, Thorne, Rohbrach, Vincus, Simons-Rudolph et al., 2003), research around family mealtime and adolescents' risk behaviours took root in studies on an extent range of factors. First of all, adolescents from single-parent families resulted more at-risk for substance use (Hemovich & Crano, 2009; Hoffman, 1993; Turner, Irwin & Millstein, 1991), school drop-out (Astone & Mc Lanahan, 1991), and teenage-pregnancy (Hogan & Kitagawa, 1985). These behavioural outcomes have been interpreted as consequences of the lack of a structured environment, with common rituals and shared routines. Secondly, substance use and delinquency appeared to occur earlier and more frequently among adolescents with low-monitoring parents (Chilcoat & Anthony, 1996). This evidence underlines the key-role of the parent-child

relationship in preventing risky lifestyles. Thirdly, boys and girls who did not experience enough support, communication or shared rules within the family environment, resulted to be more likely to develop risky and aggressive behaviours (Anderson & Henry, 1994; Gorman-Smith, Tolan, Zelli & Huesmann, 1996; Selnow, 1987), while the lack of family-shared activities was positively associated with alcohol and tobacco consumption (Cohen, Richardson & La Bree, 1994). Evidence about the effectiveness of adolescents' family cohesion (Child Trends, 2010) in buffering internalizing and externalizing problems also contributed to raising questions about the potentiality of the shared routine of family meals.

Given the theoretical and empirical research about other familial variables connected to both adolescents' risk behaviour and family environment, a vast body of evidence came to support the existence of a significant effect of family mealtime in buffering risk behaviours during adolescence. Benedict, Evans and Calder's findings (1999) reported that adolescents more at risk for substance use tend to eat more frequently with peers than with family members. According to Griffin, Botvin, Schier, Diaz, and Miller (2000), a higher frequency of shared family meals leads to a decrease of aggressive behaviours and delinquency, both in single-parent and traditional families, regardless of family structure. Research also showed that family meals are able to reduce substance use, underage sexual behaviours, antisocial behaviours, unhealthy food-habits, school-related problems, suicide ideations (Fulkerson, Story, Mellin, Leffert, Neumark-Sztainer & French, 2006), and cigarette consumption (Franko, Thompson, Affenito, Barton & Striegel-Moore, 2008). Longitudinally, the frequency of family meals is positively associated with long-term benefits for adolescents, such as an increase of family cohesion and a rise of emotion-oriented coping strategies within a ten-year period (Franko et al., 2008). The ritualization given by family mealtime was found able to increase adolescents' perceived wellbeing, self-esteem and school success (Compañ, Moreno & Ruiz, 2002), healthy eating habits and the possibility to reach a regular weight during development (Fiese, Tomcho, Douglas, Josephs, Plttrock & Baker, 2002; Sen, 2006). A further countercheck was given by research about families with low-socioeconomic backgrounds, where skipping meals did turn out to be dangerous for both the physical and the psychological health of adolescents (Molcho,

Gabhain, Kelly, Friel & Keller, 2007). However, the literature from 90s to the first decade of 2000s did not address one crucial issue: whether family mealtime could affect adolescents' habits and behaviours independently from other family-related variables.

Now: the open debate about family mealtime's true effectiveness and confounders

Last decade's research has replied several findings about the association between family structure and adolescents' school drop-out (Gioumouki, Smaili, Antoniou, & Babalis, 2018), family structure and teenage pregnancy (Zito & De Coster, 2016), parental monitoring and adolescents' delinquency (Mann, Kretsch Tackett, Harden & Tucker-Drob, 2015), family environment and risk behaviours (McLaughlin, Campbell, & McColgan, 2016), social capital (e.g., including family connectedness) and internalizing and externalizing problems (McPherson, Kerr, McGee, Morgan, Cheater, McLean et al., 2014). According to Harrison and colleagues (2015), family mealtime frequency could increase adolescents' self-esteem, school success and wellbeing. On the other hand, while family mealtime in adolescence has been found a significant factor to determine in the future development a regular weight by Berge et al. (2015), Walton and colleagues (2018) disconfirm any association between family mealtime and regular weight in adolescence. Miller, Waldfogel & Han (2012) do not report any significant association between the frequency in which adolescents attended family meals and externalizing and internalizing symptoms, or with school performance. Hoffman and Warnick (2013) also contest the significant association between family meals frequency and the initiation of alcohol and cigarette use in adolescence. Thus, Hoffman and Warnick (2013) highlight the need to address events' timing as a possible confounder, by investigating whether the adolescent is approaching the substance or performing the risk behaviour for the first time, or if it has already become a habit. Likewise, according with a study based on Health Behaviour in School-Aged Children data (Perasso et al., 2019) the frequency of family meals does not strengthen the power of parental control levels to counteract adolescents' alcohol consumption; statistically, it does not constitute a significant moderator variable on the relationship. This result implies that the qualitative factor describing the parent-adolescent relationship (i.e. parental control) may effectively buffer alcohol use in

adolescence, regardless of the quantitative aspects of the parent-adolescent relationship (i.e. the frequency of shared family meals).

Overall, the coexistence of findings going in opposite directions mirrors methodological problems in analyzing this construct. Recent studies and literature reviews on the effectiveness of family mealtime in counteracting adolescents' risk behaviours pointed out that many of the studies on this association have not considered the influence of other family-variables (i.e. family support, family cohesion or connectedness, etc.), as potential confounding factors (Goldfarb et al., 2015; Goldfarb et al., 2017). Skeer and Ballard (2013) specifically focused on the influence of gender, since girls and boys present distinct and gender-specific patterns of risk behaviours, differently associated to the attendance to family dinners. Plus, social roles and cultural stereotypes are the basis of gender differences in risk behaviours (Byrnes, Miller & Schafer, 1999; Barnes, Reifman, Farrel & Dintcheff, 2000; Tildesley & Andrews, 2008; Schultze, Ramo & Brown, 2009). Consistently, Levin, Kirby, and Currie (2012) highlight that the frequency of family dinners reduced cannabis use exclusively in boys, while other outcomes (e.g. reduction of bullying, alcohol and cigarette use) were common between boys and girls.

The main criticism concerning the effect of family mealtime frequency on adolescents' risk behaviours – the difficulty in distinguishing its effect from the effect of confounders – has partially been overcome by Utter, Denny, Robinson, Fleming, Ameratunga, and Grant (2013). After investigating the effects of crucial socio-demographic and family-related factors (i.e. age, sex, ethnicity, socioeconomic status, family cohesion, parental control, parental communication), they have found a positive association between family mealtime frequency and adolescents' wellbeing, as well as a negative association with cigarette use, binge drinking, underage sexual activities, cannabis use, depressive symptoms. However, the aforementioned study has not a longitudinal design providing evidence of family mealtime's long-term effect of on adolescents' behaviour. Thusly, the debate on the true effectiveness of the family mealtime frequency in protecting adolescents from developing unhealthy lifestyles and risk behaviours remains open. Analyzing and discussing the theoretical and methodological limits of research may represent a

crucial step in helping future studies gaining a more detailed understanding of the phenomenon.

The future challenges of research on family mealtime during adolescence

The main issue emerging from research about the association between family meals and risk behaviours is the lack of scientific consensus in the assessment and conceptualization of the family mealtime experience. More in detail, there are two main limitations on the generalizability of the results: 1). the literature presents a vast heterogeneity in the assessment of family meals frequency; 2). the literature does not provide a qualitative focus on the family meal experience, focusing mostly on the mere frequency of shared mealtime in the daily family routine. Commonly, published studies used frequency as a parameter to measure family mealtime. Still, the administered self-report questionnaires order answers on different Likert scales: for example, from 1= "never" to 3= "always" (Benedict et al., 1999), from "never" to "more than seven times per week" (Utter et al., 2013), from 0 to 7 "dinners per week" (Hoffman & Warnick, 2013), from 0 to 7 "days per week" including only breakfast and dinner (at home) while subtracting lunch (at school) (Miller et al., 2012). Moreover, the absence of a shared perspective on the quality of family meals needs to be addressed in research. For example, Berge and colleagues (2018) pointed out that the involvement of all family members in the preparation of meals is associated with the frequency of the mealtime itself, thus building a bridge between quality and frequency. This is only one among the countless variables, such as eating with the television on, using smartphones during the meal, the turn-taking in communication among family members and many others, that should be considered by future research to conceptually re-defining the family mealtime experience (Fulkerson, Loth, Bruening, Berge, Eisenberg, & Neumark-Sztainer, 2014). New assessment procedures (i.e. questionnaires, interviews, video-registered procedures, etc.) should be validated to investigate both qualitative and quantitative aspects of family mealtime. To explore both short-term and long-term effects of family meals during adolescence, future research should focus both on longitudinal design and cross-sectional studies.

Additionally, new measures overcoming the potential confounding effect of cultural bias related to meals are needed. Fiese et al. (2006) stated that eating

together characterizes the identity of Western countries' families, but national-context, cultural influences, and religious practices may shape family habits both qualitatively and quantitatively. Nowadays, USA holds the record for the strongest scientific production on family meals (i.e. Benedict et al., 1999; Franko et al., 2008; Fulkerson et al., 2006; Griffin et al., 2000; Hoffman & Warnick, 2013; Miller et al., 2012), while other countries offer lower scientific production on the topic (i.e., Levin et al., 2013 presented evidence from Scotland; Perasso et al., 2019 presented evidence from Italy; Utter et al., 2013 presented evidence from New Zealand). Additionally, previous literature reviews (Goldfarb et al., 2014; 2015; 2017; Skeer & Ballard, 2013) offered a selective focus on research from Western countries, while the preventative potential of family eating habits is also gaining importance in Western countries (Shirawasa, Ochiai, Yoshimoto, Matoba, Sunaga, Hoshino & Kokaze, 2018). Lastly, eating habits and risk behaviour differences within each nation may also be investigated as prevalence of risk behaviour may change from one region to another (e.g., northern Italian adolescents are more prone to drink than central and southern Italian, see: Ascuitto, Lugo, Pacifici, Colombo, Rota, La Vecchia, & Gallus, 2015), but no study has shed light on this issue yet.

Finally, scholars need to understand what the alternatives to the family mealtime experience for adolescents are. Studying the characteristics of the mealtime outside the family environment could enrich the scientific debate about adolescents' lifestyle and health. An investigation of the context (i.e. school canteen, fast-food, picnics, etc.), the company (i.e. alone vs with peers), the modality (i.e. eating at a table vs eating in the streets), of the adolescent's meals when they are "out of parents' sight" is recommended.

Limitations

The present work chronologically ordered and discussed literature about family mealtime effectiveness in counteracting adolescents' risk behaviours, covering a vast time-range (from 90s up to now). Up to this moment, this is the first review trying to create an historical record of the knowledge about family mealtime effectiveness in counteracting adolescents' risk behaviours. However, the review presents several limitations. Firstly, integrating two different research strategies has not prevented the inclusion of "grey literature" (e.g. unpublished materials)

in the selection process, which could have been better controlled by a systematic review strategy. Nevertheless, only performing databanks research could have cut-off many informative sources about the theoretical and empirical evolution of the phenomenon. As a second limit, implementing a retrospective research on published studies' bibliography naturally lead to encounter time-range restrictions. To control this issue, retrospective references research was only applied to material published between 2018 and 2020 (selected from Google Scholar). Finally, the selection process was exposed to human error (e.g., loosing materials, distractions in the duplicate removal and screening phases, etc.). To face this problem, Mendeley software (version 1.19.4) was used to organize materials and to perform duplicate removal. Moreover, inter-rater evaluation was conducted using an ad-hoc quality assessment sheet to limit human arbitrariness.

Conclusions

This contribution offered an historical overview of research around the effectiveness of family mealtime in preventing adolescents' risk behaviours and in promoting healthy lifestyles and positive outcomes. The contribution analyzed the importance of family meals specifically in the stage of adolescence, given adolescents' socio-emotional need to divide their time between family - which remains a source of affection and socialization - and peers - which constitute a source of new relational experiences. We also aimed at critically commenting on the theoretical and methodological debate about the preventative effect of family mealtimes. The evidence and controversies from the last three decades may encourage future studies to address the following issues: i. pursuing scientific consensus around common procedures used to measure the frequency of family mealtimes; ii. integrating qualitative and quantitative assessments of the family mealtime; iii. validating culture-free assessment procedures, able to overcome the influence of cultural traditions; iv. providing longitudinal evidence of the effectiveness of family meals against adolescents' risk behaviours; v. understanding the impact that the meals that adolescents have outside the family environment have on their psychosocial health. Facing those challenges may enable researchers to gain a better understanding of the true potential of family mealtime in structuring effective preventative and intervention procedures against risk behaviours in adolescence.

Conflict of interest

The authors have no conflicts of interest to declare.

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