

The influence of grandparents on grandchildren. Scoping review

A influência dos avós nos netos. Revisão de escopo

*La influencia de los abuelos en los nietos.
Revisión de alcance*

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Resumo

Introdução. Os avós, em particular, são reconhecidos como a "primeira linha de defesa" quando as famílias estão desorganizadas e com problemas, muitas vezes contribuindo com tempo, cuidados e recursos financeiros conforme necessário. Os laços entre avós e netos são conhecidos pela sua diversidade de conteúdos, abrangendo um amplo *continuum* de cuidados e apoio intergeracional. Este estudo tem como objetivo identificar, avaliar e resumir as melhores evidências científicas disponíveis sobre a influência dos avós nos netos. **Método.** Uma busca sistemática da literatura relevante foi realizada nas bases de dados PubMed, EMBASE, Cochrane Library, CINAHL, PsycINFO, SciELO SCOPUS, WEB OF SCIENCE e LILACS, para artigos publicados até 8 de fevereiro de 2021, relativos a estudos avaliando a influência dos avós sobre os netos. **Resultados.** Foram selecionados 13 estudos transversais. Em cinco estudos são analisadas questões financeiras e em oito estudos são avaliadas questões nutricionais. Os estudos foram de quatro continentes diferentes – Oceania, Ásia, América do Norte e Europa. **Conclusão.** Os avós no papel de cuidadores influenciam na formação dos netos e essa influência está ligada ao tempo que passam juntos. A cultura e os fatores étnicos têm um forte impacto nessa influência. Os avós contribuem para os netos nas finanças, independentemente da classe social ou nível educacional. No entanto, com a alimentação, os avós com menor escolaridade do que os filhos tendem a fornecer uma alimentação menos saudável para o neto. Assim, os avós são um público muito valioso nas campanhas de conscientização sobre alimentação infantil para redução da obesidade infantil.

Unitermos. Avós; Criança; Infantil; Doações; Influência dos pares

Abstract

Introduction. Grandparents, in particular, are recognized as the "first line of defense" when families are disturbed, disorganized, or in need, often contributing time, care, and financial resources as needed. The ties between grandparents and grandchildren are known for their diversity of content, covering a wide continuum of care and intergenerational support. This study aims to identify, evaluate, and summarize the best available scientific evidence about the influence of grandparents on grandchildren. **Method.** A systematic search of the relevant literature was conducted in the PubMed, EMBASE, Cochrane Library, CINAHL, PsycINFO, SciELO SCOPUS, WEB OF SCIENCE, and LILACS databases, for articles published up to February 8, 2021, relating to studies evaluating the influence of grandparents on grandchildren. **Results.** 13 cross-sectional studies were selected. In five studies, financial

issues are analyzed and in eight studies nutrition issues are evaluated. The studies were from four different continents – Oceania, Asia, North America, and Europe. **Conclusion.** Grandparents in the caregiver role influence the grandchildren's upbringing and this influence is linked to the amount of time they spend together. Culture and ethnic factors have a strong impact on this influence. Grandparents contribute to grandchildren concerning finances, regardless of social class or educational level. However, with food, grandparents with a lower educational level than their children, tend to provide a less healthy diet for their grandson. Thus, grandparents are a very valuable audience in awareness campaigns about infant feeding to reduce childhood obesity.

Keywords. Grandparents; Child; Infant; Gift Giving; Peer Influence

Resumen

Introducción. Los abuelos, en particular, son reconocidos como la "primera línea de defensa" cuando las familias están perturbadas, desorganizadas o en necesidad, a menudo contribuyendo con tiempo, cuidado y recursos financieros según sea necesario. Los lazos entre abuelos y nietos se caracterizan por su diversidad de contenidos, abarcando un amplio continuo de cuidados y apoyo intergeneracional. Este estudio tiene como objetivo identificar, evaluar y resumir la mejor evidencia científica disponible sobre la influencia de los abuelos en los nietos. **Método.** Se realizó una búsqueda sistemática de la literatura relevante en las bases de datos PubMed, EMBASE, Cochrane Library, CINAHL, PsycINFO, SciELO SCOPUS, WEB OF SCIENCE y LILACS, para artículos publicados hasta el 8 de febrero de 2021, relacionados con estudios que evalúan la Influencia de los abuelos en los nietos. **Resultados.** Fue seleccionado 13 estudios transversales. En cinco estudios se analizan cuestiones financieras y en ocho estudios fue evaluado cuestiones de nutrición. Los estudios procedían de cuatro continentes diferentes: Oceanía, Asia, América del Norte y Europa. **Conclusión.** Los abuelos en el rol de cuidadores influyen en la formación de los nietos y esta influencia está ligada al tiempo que pasan juntos. La cultura y los factores étnicos tienen un fuerte impacto en esta influencia. Los abuelos contribuyen a los nietos en lo que respecta a las finanzas, independientemente de la clase social o el nivel educativo. Sin embargo, con la comida, los abuelos con un nivel educativo más bajo que sus hijos, tienden a proporcionar una dieta menos saludable para su nieto. Así, los abuelos son un público muy valioso en las campañas de sensibilización sobre alimentación infantil para reducir la obesidad infantil.

Palabras clave. Abuelos; Niño; Infantil; Donaciones; Influencia de los compañeros

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INTRODUCTION

Family, from an evolutionary perspective, indicates an expected biological relationship being a lasting and powerful determinant of social investments, even in modern societies¹. Multigenerational bond have been identified as increasingly important to ensure well-being, stability, and

support for children². For young children, the most influential aspect of the immediate social context is the family³.

Grandparents, in particular, are recognized as the "first line of defense" when families are disturbed, disorganized, or in need, often contributing time, care, and financial resources as needed^{2,4-6}. The bonds between grandparents and grandchildren are known for their diversity of content, covering a wide continuum of care and intergenerational support².

Since 1990, in the United States of America (USA), there has been a 30% increase in the number of children (half of whom are under the age of six) who live in homes headed by grandparents for various reasons⁷. These include parental incarceration, unemployment, divorce or death, mental illness, abuse and neglect, child abandonment, teenage pregnancy, substance abuse, and child abandonment⁷⁻⁹.

With the increase in life expectancy, there has been a dramatic increase in the number of multigenerational families and the number of years that individuals can expect to be part of these families^{4,5}. Structural changes in the

economy have increased interest in intergenerational processes⁴. Trends in government spending indicate a shift towards family responsibility, rather than the state, for caring for individuals who need assistance⁴. The titles of the era of full employment welfare are long gone for many families and individuals; unemployment insurance; a single “living wage” sufficient to support a family; and prosperity for the majority of the working class⁴. A double income has become an economic necessity for many families, full-time employment is becoming increasingly fragile, and part-time, self-employment and limited-time employment are more common⁴.

Taking care of grandchildren represents one of the most important ways in which grandparents contribute to the well-being of their families¹⁰. In nations with emerging economies, grandparents play an especially important role in caring for grandchildren whose parents have migrated or work full-time^{10,11}. There are social and socioeconomic paths through which grandparents influence their grandchildren's chances of life^{5,10}. It should keep in mind that, in today's world, children are, most of the time, with their grandparents

as caregivers (31.4%) or in the daycare centers (31.4%) most of the time; parents are responsible most of the time in 28.5%¹². It is reported that grandparents take care of the grandchildren of 44% of British children at least once a week⁵. In the USA, almost 5% of children are raised by grandparents⁸, while in Chinese urban areas 50 to 70% of young children are cared for mainly by grandparents³.

In the Northeast of Brazil, the grandparents were referred by their grandchildren, in their majority (80%), as the most important people in their life, that the relationship between them is of authority and that they are reprimanded when they do not obey the grandparents¹³. What the children mentioned most that their grandparents did (92%) was the care with food, clothing, and storytelling/tales^{13,14}.

There are several benefits and advantages of affectivity between grandparents and grandchildren, concerning grandchildren we can say that being close to grandparents gives them a sense of security, strengthens family bonds, encourages complicity, and teaches respect for the older adult¹⁵. The advantages for grandparents, on the other hand: distraction with their grandchildren removes depression,

improves self-esteem and they feel useful to their children¹⁵. With the grandchildren's affection and attention, the feeling of well-being increases¹⁵. Thus, when affection is present in this relationship, the coexistence of grandparents and grandchildren, and all members of the family group, favors the quality of life of the family nucleus^{14,15}.

Grandparents' involvement in schooling and grandchildren's education has been associated with lower levels of antisocial child behavior and children informally cared for by grandparents have improved vocabularies^{5,16}.

This study aims to identify, evaluate, and summarize the best available scientific evidence about the influence of grandparents on grandchildren.

METHOD

For this review, the literature search was carried out on electronic databases: PubMed, EMBASE, Cochrane Library, CINAHL, PsycINFO, SciELO SCOPUS, WEB OF SCIENCE, and LILACS databases, for articles published up to February 8, 2021, in addition to manual searches of relevant journals and retrieved articles references. The MeSH terms used were "Grandparents", "Gift Giving", "Habits", "Peer Influence", "Infant", "Infant, Newborn", and "Child". No restrictions were placed on a year of publication or study type.

Studies that evaluated the influence of grandparents on grandchildren until 18 years old, including financial and food habits, were included. There was no language restriction and no exclusion for population size. There was no funding for this study.

RESULTS

We included 13 cross-sectional studies. In five studies, financial issues are analyzed and in eight studies nutrition issues are evaluated. Of the financial studies, two were performed in the United Kingdom^{1,5}, one in the USA², one in Canada⁴, and one in China¹⁰. Two studies regarding nutrition characteristics were performed in Australia^{17,18}, two in China^{3,19}, one in England¹⁶, one in Japan²⁰, one in Greece²¹, and one in Turkey¹¹. All studies implemented questionnaires for the participant to answer.

Studies selected

Nutritional influence

Farrow et al assessed how similar the eating habits of grandparents and grandchildren can be, in 100 children between 2 and 8 years old in England¹⁶. Comparing the conduct of 50 grandparents and 50 parents, a positive association of time spent between grandparents and grandchildren and a healthier nutritional environment was found, whilst using more inappropriate practices for feeding¹⁶. Specifically, grandparents reported more use of food to control emotions, reducing balance and variety of

energy intake, and using more food restriction for reasons of weight¹⁶.

In Greece, Moschonis *et al* reported the prevalence of overweight and obesity in 729 children between 9 and 13 years of age concerning various socioeconomic and demographic factors²¹. They evaluated that lower family income and having the grandmother as the child's primary caregiver, were factors significantly associated with overweight and obesity in childhood²¹.

The study by Metbulut *et al* compared eating behaviors between mothers and grandparents, and the differences between the behaviors, as well as the relationship with eating issues of 200 children aged 2 to 5 years in Turkey¹¹. It was observed that grandmothers use food more for emotionally modify behavior, and less for the restriction of unhealthy eating behaviors, than parents¹¹. Furthermore, parents teach about nutrition and monitor the food intake of a child with greater avidity than grandparents¹¹.

The study by Jongenelis *et al*, carried out in Australia, evaluated how grandparents may influence the feeding patterns of their grandchildren¹⁷. The 79 interviewed grandparents reported that they made fruits and vegetables attractive, involved children in the planning and preparation of food, promoted rewards for eating healthy foods, and educated parents and grandchildren about the benefits of healthy food.¹⁷ Often, due to differences with the assessment of the children's parents, there was conflict about food¹⁷.

Rhodes et al analyzed the feeding behavior in Australian families across different ancestry - English (11 families), Italian (8 families), or Chinese (8 families) - from three generations, with children between 7 and 18 years old¹⁸. They found that in all families there were dietary influences from the country of origin of the grandparents, which were also referred to as the best foods¹⁸. There was also a strong aspect of pride from their food background in Italian and Chinese families, always referred to, by their families, as the "best food".¹⁸ Both Italian families and Chinese families believed that their diet was the healthiest¹⁸.

Watanabe et al assessed 1765 children, ages 3 to 6 years, in Japan, whose mothers had jobs²⁰. The objective was to analyze the effects of maternal employment and the presence of grandparents on the lifestyles of pre-school children²⁰. They found that maternal employment was associated with irregular meal times, random snack times, and bedtime after 10 pm, and those families of three generations in the same household were negatively associated with irregular meal times, even after adjusting for children's characteristics and family environments²⁰. However, both maternal employment and families of three generations were significantly associated with children's obesity²⁰.

The study by Li et al analyzed whether the weight perception of 1425 children by parents and grandparents differed between boys and girls¹⁹. Physical examination revealed that 11 girls and 9 boys were underweight (BMI

below the 5th percentile)¹⁹. Of the remaining 1405 children, 327 (203 boys and 124 girls) were overweight or obese¹⁹. The univariate analysis showed that male gender, birth weight equal to or greater than 4000 grams, cesarean delivery, prenatal practices related to music, feeding time less than 10 minutes, not choosing food, living together with grandparents, obese father and/or mother and family with higher income was significantly associated with childhood obesity/overweight¹⁹. However, a significant proportion (70%) of parents and grandparents underestimated their children's weight¹⁹. Parental underestimation of a child's weight status was also greater for boys compared to girls¹⁹.

Jingxiong et al investigated how grandparents influence their grandchildren's eating behavior in 23 Chinese families of three generations.³ Three aspects emerged³:

- When grandparents were primary caregivers of children in families of three generations:
 - They played an important role in planning and preparing family meals.
- Grandparents' attitudes influenced the nutritional habits of young children:
 - They believed that large children at a young age ensured that they would have good nutritional status and would become tall in the future.
 - They showed a tendency to encourage children to eat more meals and larger portions.
- Grandparents used food as an educational and emotional tool:

- They intend to shape grandchildren's behavior and expressing love and affection through food.

All studies on food assessment are shown in Table 1.

Table 1. Summary of studies that analyze the influence of grandparents on the feeding of grandchildren.

Author and year	Study design	Objectives	Country	Sample	Results	Conclusion
Farrow 2014 ¹⁶	Cross-sectional	Evaluate similarity between grandparents and grandchildren's eating habits	England	100 children between 2 and 8 years old	Living time influences: <ul style="list-style-type: none"> • positive food environment • the use of food as a reward • eating healthy food • grandparents give less autonomy and flexibility than parents. 	Results suggest that grandparents can have a measurable impact on child feeding behaviour which in turn is likely to predict the eating behaviours of their grandchildren.
Jiang 2007 ³	Cross-sectional	Investigate influence of grandparents on feeding behavior of their grandchildren in Chinese families of three generations	China	23 families with 23 children between 3 and 6 years old.	13 children (57%) were obese. Three domains emerged in this study: (1) grandparents were the main caregivers of children in families of three generations, with a central role in the diet plan. (2) grandparents' attitudes influence eating habits of young children. Encouraged greater intake to stimulate growth. (3) grandparents used food as an educational and emotional tool, and as a form of affection.	The grandparents were determinant eating behavior for children. This can be used to develop healthy eating behavior in young children.
Jongenelis 2021 ¹⁷	Cross-sectional	Explore grandparents' strategies to generate healthy eating habits in grandchildren	Australia	79 grandparents with grandchildren between 3 and 12 years old.	Grandparents made fruits and vegetables more attractive through rewards, and involved children in food planning and preparation.	The grandparents were determinant eating behavior for children.
Li 2014 ¹⁹	Cross-sectional	To assess differences in perception of child weight by parents and grandparents.	China	1425 children between 7 and 11 years old	Univariate analysis showed that male gender, birth weight ≥ 4 kg, cesarean delivery, prenatal musical practices, meal time < 10 min, not choosing food, living with grandparents, obese parents and higher family income were associated with childhood overweight. 70% of parents and grandparents underestimated their children's weight.	There is a need to provide accurate information about the weight of the child to parents and grandparents, and consider their perceptions when planning interventions to prevent childhood obesity.
Metbulut 2018 ¹¹	Cross-sectional	To assess and compare eating habits of parents and grandparents, as well as their associations with child eating issues and BMI	Turkey	200 children between 2 and 5 years old	Grandparents use food more for behavior control. The restriction of unhealthy food intake is small.	Grandparents should teach about nutrition, and monitor eating patterns, as well as promote balance and variety.

Moschonis 2010 ²¹	Cross-sectional	Register prevalence of overweight and obesity in an urban elementary teaching, and correlate to socioeconomic and demographic factors.	Greece	729 children between 9 and 13 years old	The grandmother as the child's primary caregiver and an annual income of 12,000–20,000 euros are significantly associated with childhood overweight and obesity.	After risk factors adjustments, these were the only ones significantly associated with childhood overweight and obesity.
Rhodes 2016 ¹⁸	Cross-sectional	Analyze family eating behavior in three generations, and explore determinants in food choices.	Australia (British, Italian or Chinese descent)	27 families with children between 7 and 18 years old.	In all families, similarities were observed in the determination of food by the grandparents.	Preferences for food from their ancestor's country and that refers to grandparents childhood are passed on to grandchildren
Watanabe 2011 ²⁰	Cross-sectional	The effects of maternal employment and the presence of grandparents on lifestyles in preschool children	Japan	1765 children between 3 and 6 years old	Maternal employment and a three-generation family were associated with irregular meal and snack times, as well as sleeping after 10pm, even after adjusting for children's characteristics and family environments, and significantly associated with children's obesity.	Grandparents who take care for preschool children instead of mothers contribute to childhood obesity. Lifestyle strategies should focus on the whole family.

Finances

The study by Pollet et al analyzed the correlation between frequencies of contact of grandparents with 7469 grandchildren and investment measures of grandparents; it demonstrated that maternal grandparents have greater contact with grandchildren than paternal grandparents¹. As a consequence, maternal grandparents provided significantly more financial benefits than paternal grandparents¹. Therefore, it was found that the contact frequencies are related to other investment measures of the grandparents, being a useful measure to analyze the general investment¹.

Mutchler et al analyzed the implications of grandparents' co-residence for the economic well-being of children living in families with single mothers². They

concluded that 39% of children who live without their grandparents are poor². However, the association lowers over 50% if the child lived with two grandparents². The benefit of living with a single grandparent to reduce the likelihood of near poverty is significantly greater for African American children, while the benefit of living with two grandparents is significantly less for Latin children than for white non-Hispanic children². Among black children, more than half are expected to be poor or almost poor in families that do not include their grandparents, compared to less than 25% of similar children living with one of the grandparents².

In the questionnaire applied by Ploeg et al to determine the types, motivation, and reward sensation of financial assistance provided by the older adult, it was found that 31% of the participants provided financial assistance to grandchildren for a trust or educational fund, 17% with gifts of money, 12% with educational costs, 11% with vacations and airfares, and 6% for living expenses⁴. However, a selection bias of the questionnaire is evident, as it was applied to high-income families and a high educational level in Canada⁴.

According to the study by Silverstein et al, grandparents gave money to 65% of their grandchildren, with younger and/or wealthier grandparents, less functional disability, and fewer paternal grandchildren being more likely than their parents' counterparts to give money to their grandchildren¹⁰. They also concluded that grandchildren whose parents were men, lastborn and, especially firstborn, received more

money than other grandchildren¹⁰. Almost half of the sample's grandparents (48%) took care of at least one grandson full-time - a "skipped" generation - and gave more money when compared to the grandparents who live in another family organization¹⁰.

Tanskanen *et al* analyzed whether grandparents' investment increases children's well-being through a questionnaire that assessed 24614 children in the UK; it concluded that children who receive financial support from maternal grandparents scored higher on cognitive tests⁵. It also concludes that children who have monthly contact with maternal grandparents have fewer emotional and behavioral problems⁵. Although the data available in the British Millennium Cohort Study on paternal grandparents are not complete when compared with data from maternal grandparents, the authors speculate that the effects of maternal and paternal grandparents are similar⁵.

All studies on financial valuation are shown in Table 2.

DISCUSSION

Research related to grandparents raising grandchildren has become increasingly common in the care literature over the past two decades^{8,22}. Evolutionary psychologists, have argued that grandparents' investment is a natural aspect of human family life⁵. Grandparents are often a resource for the youngest members of the family often interfering during family crises². For many children, grandparents are an integral part of their families, contributing time and financial

resources² – interestingly. children from large families tend to have conversations about intimate matters more commonly with grandparents than parents²³.

Table 2. Summary of studies that analyze the financial influence of grandparents on grandchildren.

Author and year	Study design	Objective	Country	Sample	Results	Conclusions
Mutchler 2009 ²	Cross-sectional	Examine the implications of living with grandparents in economic well-being of children from families with single mothers	USA	5866 children from <i>the 2001 panel of the Survey of Income and Program Participation (SIPP)</i>	39% of children live in a home that does not include a grandfather are poor This rate is reduced to 50-14% among children who live with two grandparents at home.	The benefit of living with a grandfather in reducing the likelihood of near poverty is greatest for African American children. The benefit of living with two grandparents is lower for Latin children than for white ones. Among black children, > 50% are poor or nearly poor families without grandparents, dropping to <25% with the presence of a grandparent.
Ploeg et al 2004 ⁴	Cross-sectional	Determine types of financial assistance provided by the elderly, their motivations and reflexes for the elderly themselves.	Canada	138 people over 55 years old - Presence of bias as they were of high income and high level of education	113 participants with grandchildren reported most commonly providing financial assistance to grandchildren for a trust or educational fund (31%), gifts (17%), educational costs (12%), airfare or holidays (11%), or cost of living (6%). For grandchildren, the most common type of financial assistance was for a trust or educational fund	Events and transitions in the lives of parents shape the financial assistance provided to these families. Older parents demonstrate a strong desire to help their children and grandchildren in transitions such as unemployment, illness or divorce, to "build or rebuild lives." Motivations: need of the children and wanting to help for love and commitment to family, besides being financially able.
Pollet et al 2009 ¹	Cross-sectional	Correlate frequencies of contact between grandparents and grandchildren and investment measures.	United Kingdom	7469 children from the Millennium Cohort Study	Greater interaction between grandchildren and maternal grandparents than with paternal grandparents; however, paternal grandparents had a higher frequency than maternal grandparents. Maternal grandparents provided more financial benefits than paternal, as well as being more likely to provide essential items and gifts.	Contact frequencies are related to other investment measures.
Silverstein et al 2019 ¹⁰	Cross-sectional	Assess predictors of money transfers made by grandparents	Rural China	831 grandparents for children in the families of	48% of grandparents took care of at least one grandchild full time, and 41% spent money to benefit grandchildren.	The results show that economic, domestic and cultural factors are independently associated

		to grandchildren in rural China		1633 couples, from the <i>Longitudinal Study of Older Adults in Anhui Province</i> .	Grandparents gave money to 65% of their grandchildren; provided higher value transfers to grandchildren whose parents provided greater subsidies or with whom they co-lived without their parents. The probability of making a transfer followed the male line and was greater for families with only grandchildren, in which the parents were firstborn.	with grandparents' generosity. Grandparents' economic contributions to grandchildren in rural China are shaped by family demands in a highly mobile society, with interdependence between generations, in a persistent patrilineal gender system that reaches the level of grandchildren
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Nutritional influence

The prevalence of childhood overweight (25%) and obesity (8%) in Western countries is a significant public health problem, with an additional 50% of children with health weight presenting likely to become adults overweight or obese, based on the prevalence current overweight and obesity combined of 70% for men and 56% for women^{24,25}. Childhood obesity is associated with an increased risk of chronic diseases, such as cardiovascular disease and diabetes mellitus and also has a profoundly negative effect on children's psychological health^{3,18,20,26}. Several sociodemographic and family environment characteristics, such as prenatal practice, socioeconomic status, and parental behavior, were found to be associated with the risk of obesity/overweight among children^{3,19,21,24,27}. According to Nielsen et al carried out in Denmark, families with ethnic minority status are more likely to have the child's grandparents as a source of knowledge regarding food²⁸. In addition, low average annual family income was associated with an increased likelihood of overweight and obesity in

childhood compared to a high level of annual family income²¹.

With the proximity of the grandmothers and their help in caring for mothers and babies (bathing, dressing the stump, changing diapers, helping with the house, clothes, and the kitchen), it can be inferred that the grandmother has credibility and great potential to exert a positive influence on the establishment and maintenance of breastfeeding, provided they acquire adequate knowledge and skills^{14,29}. The eating habits of children up to 12 years of age are significantly influenced by the family²⁶. The family's eating environment includes the children's actual feeding practices, their eating habits, as well as the beliefs and attitudes they verbally convey about healthy nutrition and promoted eating behavior^{3,27,30,31}. Including, food preparation by grandparents is observed by the grandchildren and³⁰, as a consequence, in adulthood, grandchildren run on similarly^{30,32}. There is naturally an interaction between the above factors, so grandparents' influences can be transmitted directly (through the food served) and indirectly (through the transmission of models of behavior and social norms) to children^{3,30,32}. The McKinney cohort study evaluated 3648 children born between 1998 and 2000 for 9 years in the USA and found that children who lived in the same house as their grandparents are more likely to be overweight and obese, especially when there was already daily coexistence between grandparents and grandchildren in the child's first year of life³³.

A relevant fact is that incorrectly estimating a child's weight can result in unhealthy parenting behavior and can cause the child to become overweight¹⁹. In the study by Li et al in China, parental underestimation of a child's weight status was also greater for boys compared to girls¹⁹. In China, the majority of older people believe that boys should be strong, and sometimes being overweight is seen as a sign of strength while thin, elegant girls are viewed favorably¹⁹. Therefore, those responsible can adopt more behaviors aimed at diet and exercise to control the weight of girls than for boys, which can lead to more obese/overweight boys than girls¹⁹. The main reason for this gender difference may be related to social values and cultural factors¹⁹.

In the study by Jingxiong *et al*, the conflict about child nutrition between generations was especially obvious in families with obese children, often generating stressful situations³. It must be taken into account that some studies show that social stress can result in insulin resistance and central obesity through the activation of the sympathoadrenal system in the child³³ and that several parents expressed frustration at not being able to influence grandparents way of feeding their children³. The main problem seemed to be that while the parents defined the child's obesity as a problem, the grandparents strongly disagreed.³ The grandparents declared in these families that the child was strong, happy and healthy and not fat³, a situation also reported in the study by Li *et al*¹⁹. This characteristic was more accentuated when the grandparents

were of low educational level and had little knowledge about healthy eating^{3,26}. The higher level of education of those responsible for children is a protective factor against childhood obesity³³. Although the parents disagreed, the grandparents' feeding practices prevailed, as they were the main caregivers³. In addition to the fact that grandparents also offer more sweets to children when mothers warned grandparents not to do so³⁴, even making it difficult for children to change their diet³⁵. Grandparents choose and buy food for their families according to their grandchildren's preference and have always taken the child's wishes into account when preparing meals^{3,31}. It should be noted that, in the study by Yue et al, grandparents report improvements in their eating habits when compared to their diet in youth and, even so, it does not match the knowledge of the children who have a higher level education³⁶.

According to the study of Yue *et al* conducted with 923 mothers and 460 grandmothers Young Kid to between 18 and 30 months in rural China, grandparents, in general, are less educated than the parents of the children, and also unlike the parents seeking information with health professionals, internet, books or official bodies, grandparents get information from their own experiences, families or friends³⁶. When grandparents are the primary caregivers and those who provided the immediate family environment for their grandchildren, their views and ideas of healthy child nutrition were influenced by their own experiences of poverty, the conception that obesity is a sign of health and

that his breeding duty was to provide the only child in the family with large quantities of foods of the kind that the child likes and which are considered nutritious^{3,37}. Grandparents offered high-energy foods as a reward for promoting better conduct in children^{3,38}. Using food as a reward, however, tends to increase the preference for food to reward, leading to less healthy food preferences in children^{3,38}.

However, grandparents encourage children to exercise, restrict their television time, and reduce diets high in calories and fat if they believe that children are obese or overweight¹⁹. In contrast, they may not restrict these diets if they do not believe that children are obese or overweight¹⁹. Grandparents' tendency to underestimate a child's weight can lead children to overeat and exercise less¹⁹. Jongenelis *et al* evaluated strategies on how grandparents can have a positive influence on grandchildren's diets, how to involve grandchildren in food preparation, and make vegetables and fruits attractive¹⁷. Nevertheless, some commonly named strategies, such as disguising fruits and vegetables and providing food-based rewards may inadvertently promote unhealthy eating behaviors¹⁷.

Weight control strategies range from healthier behaviors, such as a moderate diet and exercise, to potentially harmful behaviors, such as using laxatives, using diet pills, and skipping meals³⁹. In the study carried out in the USA by Boutelle *et al*, more than 9% of obese girls and almost 3% of obese boys reported the use of one of the unhealthy methods of weight control (vomiting, diet pills,

laxatives) ³⁹. These are behaviors that require attention because eating habits acquired in childhood tend to persist throughout adulthood³.

The eating environment that grandparents provide during early childhood, no doubt, helps to shape children's food preferences, as well as their subsequent selection patterns and eating styles^{3,40,41}. Grandparents in the roles of caregivers can negatively influence food intake and the weight of grandchildren²⁴. According to the study by Li et al, which analyzed the influence and neighborhood of 751 children between 8 and 10 years of age, children whose grandparents are responsible for their meal (s) are more likely to be obese. for consuming more unhealthy snacks and sugary drinks⁴². Therefore, more rigorous and targeted studies are needed to better define the mechanisms by which the knowledge, attitudes, and eating behaviors of grandparents can influence children's food intake²⁴.

The culture and the ethnic factors have a strong impact on both the nature of the practices and feeding styles of grandparents, as they influence them^{16,18,33,37}. In the USA, children of Hispanic origin are the most overweight or obese, followed by young African-Americans³³. Examples of this disparity are evidenced in American and Australian studies of migrant groups and indicate that people born in Italy and several other European countries are more likely to be overweight and obese compared to migrants from China and other Asian countries¹⁸. Still, grandparents widely play a crucial role in shaping the food environment in families of

three generations living together^{3,14,24,43}, and some are quite aware of their responsibility²⁶. The sensation produced by the food and the care provided by the grandmothers are fixed in the grandchildren's memories surprisingly and can leave important marks in their life, making them safer, more affective, and healthier¹⁴. Grandparents can be an important audience to be targeted in future child nutrition interventions²⁴ and in the formulation of health policies to deal with childhood obesity^{20,26,33,40}.

Finances

Grandparents' wealth is a unique indicator of grandchildren's wealth, above and beyond the role of parents' wealth⁴⁴. Consideration of grandparents' wealth is important, since the accumulation of grandparents' assets, unlike parents, peaks during the children's life cycle and may therefore be more readily available to support investment in early childhood⁴⁴. Grandparents can serve as channels for remittances received from migrant children who can improve the health and educational performance of grandchildren in their care, as demonstrated in China, Morocco, and Colombia¹⁰. Evidence from Indonesia showed that grandparents with sufficient resources tended to be network providers for their descendants, serving as the "economic backbone of the multigenerational family"¹⁰. Pfeffer et al do not deny the possibility that some families provide an exceptional advantage for their descendants, directly transferring large amounts of wealth, but they suggest that,

on average, direct transfers are not the main channel through which the wealth advantage is passed down through the generations⁴⁴.

Much higher levels of family income are reported in families that include grandparents². In all, the average family income for children living with a single mother plus a single grandparent is almost \$37,000 on an annual basis - one-third more than the average reported for children in single-mother families without grandparents (about \$ 28,000)². For children living with two grandparents, the difference is even more significant². These children live in families with an average income twice that of those including single mothers only². In addition, families that include a grandparent are more likely to report that they receive various types of income, suggesting that children in these families turn to a greater variety of sources of support².

Cash transfers to grandchildren also have a strong cultural component^{10,41}. Silverstein *et al* demonstrated that financial transfers were destined to paternal grandchildren, as well as grandchildren born to firstborn children in Chinese rural families¹⁰. This culture that extends to grandchildren implies that the economic resources that flow into the male line have consequences for gender inequality in at least two generations¹⁰. The financial aid provided to the grandchildren was mostly for educational purposes, to allow them to acquire skills and knowledge (and academic credentials) as tools that could help them establish themselves and build their secure future^{4,5}. In some cases, the financial support is

given to adult children was specifically designed to provide security for grandchildren⁴.

For many parents, their own previous family experiences of financial assistance, particularly related to the parents themselves, influenced whether they assisted their children and grandchildren^{4,14}. Although receiving financial aid earlier in life motivated some parents to provide intergenerational support, others were motivated to provide help because they did not receive financial assistance from their parents⁴. Some historical events, such as the crash of 29 (Great depression of 1929) were shown to be remarkable in intergenerational aid in some participants in the study by Ploeg *et al*⁴. Something similar may occur at the moment about the global economic crisis caused by COVID-19, requiring a detailed assessment on the subject in the coming years. Some people feel a strong desire to provide financial help to their children and grandchildren when it is most needed and as long as they can enjoy the experience of giving such help themselves Support and assistance between generations depends on the availability of resources, as highlighted by many participants in the study by Ploeg *et al*⁴.

Some research suggests that the care of grandchildren is beneficial to the health of caregivers - grandparents, as caregivers can obtain rewards and fulfillment through care^{41,45}. Parents/grandparents who practice altruism tend to feel more competent in their parental role and to feel fulfilled, helping to cushion the development of major depression in men^{41,45}. Grandparents, as reported in some studies, can

describe a sense of renewed purpose, in addition to the support, love, and joy that grandchildren brought to their families⁷, in addition to the reduced risk of suffering from Alzheimer's disease and other cognitive disorders⁴¹.

Nevertheless, other studies suggest that grandparents have adverse effects on physical and mental health as a result of caring for their grandchild⁷. The exacerbation of health problems, such as hypertension and diabetes previously controlled, can result from the stress of this care⁷. In addition to the role of caregiver, the reasons why grandmothers raise their grandchildren (for example, imprisonment of parents, substance abuse) undoubtedly increase their stress, which can lead to mental health and stress-related problems, such as depression and anxiety^{7,8}. Several factors contribute to the high psychological distress in caregiver grandparents, the most relevant being the grandchildren's behavior problems, the lack of family resources, and, mainly, the decrease in the grandmother's physical health⁸.

According to Scarcella *et al*, about one-fifth of the children who lived with their grandparents (19%) had a limiting condition or were in regular or poor health⁴⁶. One in ten children aged 6 to 17 who live with their grandparents exhibited high levels of emotional or behavioral problems and 26% had low levels of school performance⁴⁶. Often, due to traumatic experiences that often require placement with grandmothers (for example, child abuse, abandonment, parental death), grandchildren are at greater risk for

psychological difficulties⁸. In the study by Kelley et al with 230 children raised by grandparents, more than 30% had clinically elevated behavior problems, indicating the need for psychological assessment and possible therapeutic intervention⁴⁷.

CONCLUSION

Grandparents in the caregiver role influence the grandchildren's upbringing and this influence is linked to the amount of time they spend together. Culture and ethnic factors have a strong impact on this influence. Grandparents contribute to grandchildren with finances, regardless of social class or educational level. However, concerning food, grandparents with a lower educational level than their children, tend to provide a less healthy diet for their grandson. Thus, grandparents are a very valuable audience in awareness campaigns about infant feeding to reduce childhood obesity.

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