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Original Article

Educational Intervention on Knowledge and Practices Regarding Healthy Eating Among Mothers at the "Pan de azúcar" Community Kitchen - Lima

Intervención educativa sobre los conocimientos y prácticas en alimentación saludable en madres del comedor "Pan de azúcar" - Lima

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ABSTRACT

Healthy eating is a fundamental pillar for the physical and mental well-being of the population. In this context, mothers enrolled in food supplementation programs play a crucial role in meal preparation; therefore, it is important to strengthen their knowledge of nutrition and promote healthy eating practices. The objective of the study was to determine the changes resulting from an educational intervention on knowledge and practices regarding healthy eating among mothers enrolled in the "Pan de Azúcar" community kitchen – Lima, 2023. This was a descriptive correlational study with a quasi-experimental, longitudinal, and prospective design. The sample consisted of 43 mothers enrolled in food supplementation programs. A survey method was used, applying a pre- and post-intervention questionnaire validated by expert judges, in order to assess knowledge and practices related to healthy eating. In the pretest results, 46.5% (n=20) and 51.2% (n=22) showed low and moderate levels of knowledge and practices, respectively, while only 2.3% (n=1) demonstrated a high level. After the intervention, 67.4% (n=29) and 32.6% (n=14) demonstrated high and moderate levels of knowledge and practices, respectively. The Wilcoxon non-parametric test (p = 0.000) showed statistically significant changes. In conclusion, the educational intervention led to significant improvements in the nutritional knowledge and practices of mothers at the "Pan de Azúcar" community kitchen, located in the district of San Martín de Porres, Lima, 2023.

Keywords: Educational intervention, healthy eating, knowledge, practices.

RESUMEN

La alimentación saludable es un pilar fundamental para el bienestar físico y mental de la población. En ese contexto, las madres inscritas en los programas de complementación

alimentaria cumplen un papel crucial en la elaboración de alimentos; por ello, es relevante fortalecer sus conocimientos sobre nutrición y promover prácticas alimentarias saludables. El objetivo fue determinar los cambios que produce una intervención educativa sobre los conocimientos y prácticas en alimentación saludable en madres inscritas en el comedor Pan de Azúcar – Lima, 2023. El estudio fue descriptivo correlacional, con diseño cuasi experimental, longitudinal y prospectivo. La muestra estuvo conformada por 43 madres inscritas en el Programa de Complementación Alimentaria. Se utilizó la técnica de la encuesta, aplicando un cuestionario pre y post intervención, validado por jueces expertos, con el fin de evaluar conocimientos y prácticas en alimentación saludable. En los resultados del pretest, el 46,5 % (n=20) y el 51,2 % (n=22) presentaron conocimientos y prácticas bajos y regulares, respectivamente, mientras que solo el 2.3 % (n = 1) tuvo conocimientos y prácticas buenas. Tras la intervención, el 67,4 % (n=29) y el 32,6 % (n = 14) mostraron conocimientos y prácticas buenas y regulares, respectivamente. La prueba no paramétrica de Wilcoxon (p = 0,000) evidenció cambios estadísticamente significativos. Conclusión: La intervención educativa produjo mejoras significativas en los conocimientos y prácticas de nutrición de las madres de familia del comedor Pan de Azúcar, distrito de San Martín de Porres, Lima 2023.

Palabras clave: Intervención educativa, alimentación saludable, conocimientos, prácticas.

INTRODUCTION

In Peru, significant social and economic inequalities persist, affecting the food security of families. According to INEI (2024), the national poverty rate reached 29% in 2023, with a higher impact on rural areas (39.8%) than urban areas (26.4%). This situation limits access to the basic family food basket and compromises the nutritional status of children, who constitute a priority group for human development.

To mitigate this problem, the Peruvian State has implemented food supplementation programs, where the Vaso de Leche Program and the Comedores Populares stand out (MIDIS, 2024). These programs seek to improve the nutritional intake of vulnerable populations through affordable rations and state subsidies. However, their success largely depends on the level of nutritional knowledge and the food practices of the mothers responsible for food preparation. Studies have indicated that a low level of knowledge regarding healthy eating directly affects diet quality in children and the prevalence of problems such as anemia, obesity, and other chronic diseases (Tarazona, 2021; Choco & Huerta, 2021).

Despite the importance of this group, research on the knowledge and food practices of mothers in popular kitchens remains scarce and outdated. Educational interventions constitute effective tools for promoting changes in eating habits and improving the nutritional status of families (Bernal *et al*., 2010).

There is a need to evaluate the impact of educational programs in this sector. Therefore, the present study aimed to determine the changes produced by an educational intervention on knowledge and practices related to healthy eating among

mothers from the Pan de Azúcar community kitchen, Lima, 2023.

MATERIALS AND METHODS

The population consisted of 50 mothers who were beneficiaries of the community kitchen and the Vaso de Leche program of the AA.HH. "Pan de Azúcar", located in the district of San Martín de Porres, Lima, Peru. Inclusion criteria included: mothers with children under 13 years of age enrolled in the programs (with a minimum of three months of affiliation), regular attendance, and no mental or cognitive disability. Those who did not agree to participate, did not complete the sessions, or did not attend the evaluations were excluded.

The final sample consisted of 43 mothers, selected through non-probability convenience sampling. The unit of analysis was the "Pan de Azúcar" community kitchen.

A data collection form was used in coordination with those responsible for the social programs, ensuring the confidentiality of the information. Written informed consent was obtained prior to the start of the research.

The educational intervention was carried out in three sessions. For the theoretical sessions, the "Módulo de Capacitación: Orientación y manejo alimentario nutricional" (Training Module: Nutritional Food Guidance and Management) from the Ministry of Health (MINSA, 2005) was used. Demonstrative sessions were conducted under the "Learning-by-doing" methodology, using the technical document of the Ministry of Health (2023), in which the mothers practiced the appropriate preparation of local foods.

The evaluation of knowledge and practices was conducted using a questionnaire adapted from Herrera and García (2022), with a reliability of $\alpha = 0.8713$. The questions were modified and images were incorporated to adapt it to the population context, and the adapted version was validated by five expert judges. This instrument included 20 questions (10 on knowledge and 10 on practices, multiple-choice, plus one open-ended question). Scores were categorized as low (0–10), fair (11–15), and good (16–20).

Statistical analysis was performed using descriptive statistics (frequencies, percentages, means) and inferential statistics to demonstrate data distribution. The non-parametric Wilcoxon test was used to compare pretest and post-test results, considering a significance level of $p < 0.05$.

RESULTS AND DISCUSSION

Table 1 shows the age distribution of the participants, which ranges from 18 to 65 years. The age group with the greatest representation corresponds to the 26 to 35-year interval, accounting for 30.23% (n = 13) of the total respondents. It is observed that the majority of the mothers have completed secondary education, which constitutes the predominant level of instruction in the sample, with 34.9% (n = 15).

The results obtained suggest notable agreement with various previous studies regarding the characterization of the target population. As evidenced by the studies of Esquivel (2022), the populations addressed in those works are also mostly composed of users of social assistance programs, such as community kitchens, the Vaso de Leche program, or analogous initiatives under different names depending on the geographical or institutional context.

With respect to the educational level and occupations of the individuals eva-

Table 1.
Distribution of mothers according to general characteristics

N° Participant	Age (years)	Educational level
1	39	Completed higher institute
2	25	Completed high school education
3	31	Incomplete high school education
4	34	Higher institute (in progress)
5	40	Completed high school education
6	18	High school (in progress)
7	51	Completed high school education
8	62	Completed high school education
9	39	Higher institute (in progress)
10	37	Higher institute (in progress)
11	50	Completed high school education
12	33	Higher institute (in progress)
13	47	University studies (in progress)
14	45	Higher institute (in progress)
15	54	Completed high school education
16	50	Completed high school education
17	21	High school (in progress)
18	66	Completed high school education
19	51	Incomplete Higher institute
20	42	Completed high school education
21	58	Incomplete high school education
22	22	Completed high school education
23	22	Incomplete high school education
24	40	Completed high school education
25	32	University studies (in progress)
26	29	Higher institute (in progress)
27	34	Incomplete university studies
28	48	Completed higher institute
29	29	Completed high school education
30	35	Completed high school education
31	36	Incomplete high school education
32	47	Incomplete higher institute
33	28	Incomplete higher institute
34	46	Incomplete high school education
35	35	Incomplete high school education
36	59	Completed high school education
37	36	Incomplete institute
38	32	Incomplete high school education
39	27	Incomplete high school education
40	58	Incomplete high school education
41	22	Incomplete institute
42	40	Incomplete institute
43	33	Completed high school education

luated, similar patterns are also identified to those observed in the referenced study by Robles and Zevallos (2024). This similarity can be explained by the prevailing socioeconomic condition among beneficiaries of social programs, who mostly belong to low-income sectors with limited access to higher education. This structural reality directly affects the homogeneity of occupational profiles and the restriction of educational opportunities.

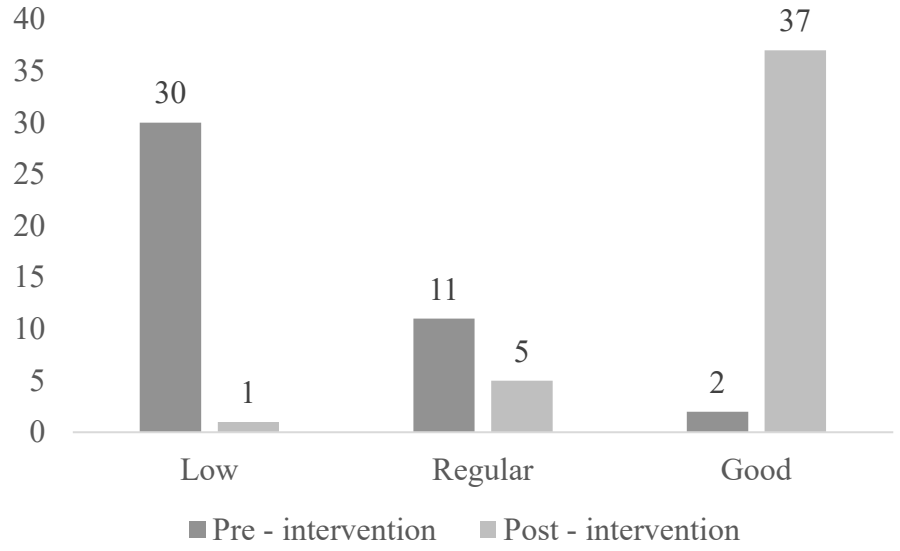

Figure 1. Educational intervention on knowledge of healthy eating among mothers of the "Pan de Azúcar" community kitchen

When analyzing in a disaggregated manner the levels of knowledge related to healthy eating, classified into the categories of low, fair, and good, Table 2 shows that during the initial evaluation (pretest) the corresponding percentages were 69.77%, 25.58%, and 4.65%, respectively. However, after conducting the post-intervention evaluation (post-test), a notably positive transformation in the distribution of these levels is observed. Specifically, a substantial decrease in the low level was recorded, dropping to 2.33%, while the fair level decreased to 11.63%. The results of the present study demonstrate a positive impact of the educational intervention on strengthening knowledge and practices related to healthy eating among mothers from the Pan de Azúcar community kitchen. More than 80% of the participants showed significant improvements in the evaluated indicators, confirming the effectiveness of the educational strategies implemented.

These findings are consistent with those reported in previous research (Agdeppa *et al*., 2019; Prías and Contreras, 2020), where notable increases in knowledge levels were also documented following the implementation of educational programs. Also, they are in agreement with what was reported by Mendoza and Chavez (2020), who demonstrated a considerable increase in the level of knowledge and dietary practices among mothers in community contexts, highlighting the usefulness of educational interventions as a means to promote appropriate nutritional behaviors.

Although 18.6% of the participants did not show relevant changes, it is important to emphasize that no regressions were

recorded in the analyzed indicators, which reinforces the relevance of the training process. In this regard, the need to design participatory educational programs, contextualized to the sociocultural characteristics of the population, is recognized in order to ensure sustainable public health interventions that empower mothers in their active role in the preparation and distribution of food in community spaces.

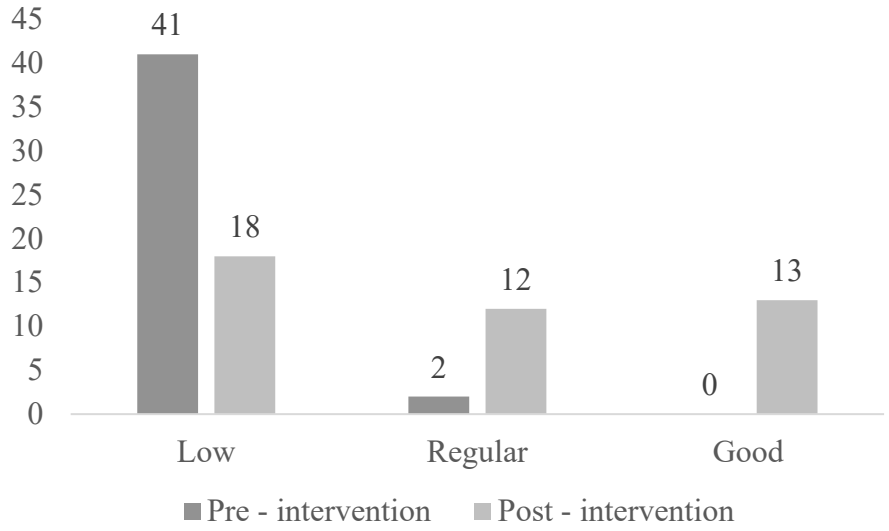

Figure 2. Educational intervention on healthy eating practices among mothers of the "Pan de Azúcar"

Table 2.
Changes produced by the educational intervention with respect to knowledge and practices, expressed in positive and negative ranks

		n	%
(Knowledge and practices) 2 vs (Knowledge and practices) 1	Negative ranks	0[a]	0
	Positive ranks	35[b]	81.4
	Ties	8[c]	18.6
	Total	43	100

a. Practice 2 + Knowledge 2 < Practice 1 + Knowledge 1
b. Practice 2 + Knowledge 2 > Practice 1 + Knowledge 1
c. Practice 2 + Knowledge 2 = Practice 1 + Knowledge 1

When carrying out an individualized evaluation of practice levels, classified into the categories of low, fair, and good, Table 3 shows a positive and notable change after the educational intervention. The educational intervention generated a substantial change in the levels of dietary practices. Initially, the low level predominated (95.3%), but after the educational intervention it was reduced to 41.9%, while the fair (27.9%) and good (30.2%) levels increased, demonstrating significant im-

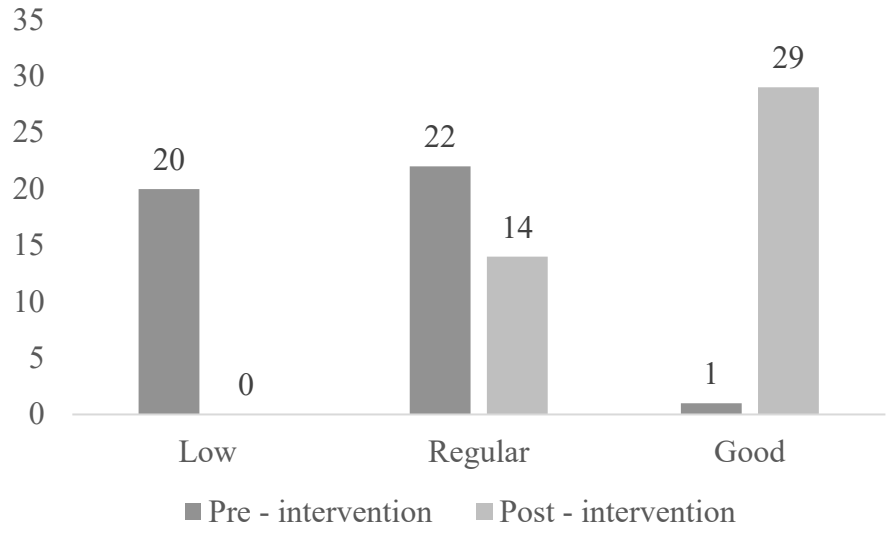

Figure 3. Effect of the educational intervention on knowledge and healthy eating practices among mothers from the "Pan de Azúcar" community kitchen.

Table 3.
Normality test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistical	df	Sig.	Statistical	df	Sig.
Diference P2-P1	.143	43	.027	.971	43	.331
Diference C2-C1	.154	43	.011	.964	43	.193
Diference (P2+C2) - (P1-C1)	.156	43	.010	.936	43	.019

a. Practice 2 + Knowledge 2 < Practice 1 + Knowledge 1
b. Practice 2 + Knowledge 2 > Practice 1 + Knowledge 1
c. Practice 2 + Knowledge 2 = Practice 1 + Knowledge 1

provements in the adoption of appropriate practices. This finding reflects a reduction of more than 50% in inadequate behaviors, consistent with the results reported by Ramírez (2023), Villagra *et al*. (2020), and Mori *et al*. (2025), who also documented significant decreases in inadequate dietary practices following educational interventions.

The observed progress may be attributed to the limited prior training of the participants in nutrition, which leads to the replication of erroneous practices. In this sense, the intervention fulfilled a corrective and preventive role, providing conceptual and practical tools that facilitated the acquisition of healthier habits. These results consolidate the relevance of educational interventions as effective strategies for the promotion of food-related health in community contexts.

Table 4 presents the results obtained, revealing that 81.40% (n = 35) of the participants experienced notable improvements as a direct consequence of the intervention. In contrast, 18.60% (n = 8) did not show substantial changes in either their knowledge or their dietary practices

after the educational activity. It should be noted that no regressions or decreases were recorded in the evaluated indicators, which confirms the absence of adverse effects associated with the implemented training process.

The educational intervention produced substantial improvements in the levels of knowledge and dietary practices of the participating mothers. As shown in Table 5, the low (46.5%) and fair (51.2%) levels initially predominated; however, after the intervention, the low level disappeared and the good level increased to 67.4%, evidencing an increase of 65.1% in the group with the highest performance. These findings are consistent with those reported by Robles and Zevallos (2024) and Herrera and García (2022), confirming that interventions based on educational and demonstrative sessions, when designed by qualified professionals and contextualized to the social reality of the population, constitute effective strategies for promoting positive transformations in vulnerable communities.

The normality of the data was assessed using the Shapiro–Wilk test. The assumption of normality was confirmed for the differences in knowledge scores ($p = 0.331$) and practice scores ($p = 0.193$), but not for the differences in total scores ($p = 0.019$). Consequently, the Student's t-test for paired samples was applied to compare pre- and post-test results for knowledge and practices, while the non-parametric Wilcoxon test was used for total scores.

The null hypothesis (H_0) stated that the educational intervention does not produce changes in nutrition knowledge among mothers from the Pan de Azúcar community kitchen in the district of San Martín de Porres, Lima – 2023. The alternative hypothesis (H_1) proposed that the educational intervention does produce changes in such knowledge. The decision rule established the rejection of H_0 when the significance value was less than 0.05.

As shown in Figure 2, the educational intervention demonstrated a positive impact on participants' knowledge. Of the total sample, 42 participants (97.7%) showed positive ranks after the intervention, no negative ranks were recorded, and only one tie was observed.

Table 4.
Effect of the intervention on knowledge

Ranks	n	Mean rank	Sum of rank
Knowledge 2 – Negative ranks	0[a]	.00	.00
Knowledge 1 – Positive ranks	42[b]	21.50	903.00
Ties	1[c]		
Total	43		

a. Knowledge 2 < Knowledge 1
b. Knowledge 2 > Knowledge 1
c. Knowledge 2 = Knowledge 1

The educational intervention showed a positive impact on the participants' knowledge. Of the total, 42 (97.7%) presented positive ranks after the intervention; one tie was recorded and no negative ranks were observed.

Table 5.
Effect of the intervention on practice

Ranks	n	Mean rank	Sum of rank
Practice 2 – Negative ranks	1[a]	6.50	6.50
Practice 1 – Positive ranks	41[b]	21.87	896.50
Ties	1[c]		
Total	43		

CONCLUSIONS

The educational intervention implemented among mothers from the Pan de Azúcar community kitchen, located in the district of San Martín de Porres, Lima (2023), proved to be effective in generating positive and statistically significant changes in the participants' nutritional knowledge and practices ($p < 0.05$). The vast majority of participants showed improvements after the intervention, while a small group maintained their previous level, with no regressions observed.

These findings allow us to conclude that the applied educational strategy constitutes a useful tool for strengthening both knowledge and practice of healthy eating habits in community contexts. The results support the importance of continuing to promote this type of intervention, as they contribute to improving nutritional education and, consequently, may enhance the health status of populations in vulnerable situations.

RECOMMENDATIONS

It is suggested that the district mayor consider the incorporation of nutrition professionals within social food assistance programs, in order to provide theoretical–practical support through educational interventions aimed at all beneficiaries, thereby contributing to the optimization of their nutritional status.

Program administrators are recommended to organize periodic meetings supported by didactic materials, with the purpose of reinforcing the knowledge acquired, keeping it up to date, and including newly enrolled mothers, while addressing their questions at the theoretical level.

Finally, mothers are advised to coordinate quarterly strategic meetings with nutrition professionals, which would allow for strengthening the practical application of knowledge, correcting errors, and promoting the proper preparation of foods from a practical and healthy perspective.

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Author Contribution Statement

• Karen V. Quiroz–Cornejo: Conceptualization; methodology and project administration.

• Candy L. Luyo–Veliz: Methodology; statistics, and review and editing.

• Rosa L. Gurmendi–Remón: Data analysis and original draft preparation.