

## Original Article

# Exploring the Effectiveness of Health Communication Campaigns in Solving the Health Problems of Female Farm Workers in Rural Punjab and Sindh

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**Abstract: Background:** This study explores the effectiveness of health communication campaigns in addressing the health challenges faced by female farm workers in rural Punjab and Sindh, Pakistan. Female agricultural laborers in these regions experience significant occupational health issues, including respiratory diseases, musculoskeletal disorders, and reproductive health problems, exacerbated by low literacy, poverty, limited healthcare access, and cultural barriers. **Methods:** Using a quantitative, cross-sectional survey of 433 female farm workers, the research evaluates how exposure to health communication campaigns influences health knowledge, behaviors, and health outcomes. **Results:** Findings indicate that these campaigns positively impact health awareness and promote protective practices, such as safe pesticide use and menstrual hygiene management. Increased exposure to clear and culturally appropriate messages, often delivered in local languages by trusted female health workers, correlates with improved health behaviors and a reduction in reported health problems. However, socio-economic factors, including education level, income, healthcare accessibility, and restrictive gender norms, pose significant challenges that limit the full potential of these campaigns. **Conclusion:** The study underscores the importance of integrating health communication efforts with broader socio-economic and healthcare infrastructure improvements to achieve sustainable health benefits for this marginalized population. These results provide valuable insights for policymakers and health practitioners aiming to optimize health communication strategies to improve rural women's health and well-being in Pakistan.

**Keywords:** Health Communication Campaigns, Female Farm Workers, Rural Pakistan, Occupational Health, Behavior Change



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## 1. Introduction

Health communication campaigns are carefully planned to inform specific populations, hoping to change their opinions, actions and habits to benefit their health. In order to connect with their specific audiences, these campaigns rely on mass media, one-on-one conversations and involving the community (Sood et al., 2014). While female members of the agricultural workforce are important in Punjab and Sindh's rural settings, they have to deal with many health problems that are often made worse by income gaps and barriers to health facilities, as well as cultural norms. Making sure to respond to these issues using campus health communication campaigns can benefit their well-being and level of work.

In these areas, women on farms are essential, carrying out many jobs like planting, harvesting, processing and distributing agricultural products. While they make important contributions, many farmworkers struggle with health issues relating to muscles and joints, lungs and reproductive health. According to a study conducted in rural Tehsil Dera Ghazi Khan, most women working on farms faced health challenges, including various injuries and signs of stress (Tarar et al., 2016). Many people experience these problems in addition to illiteracy, poverty and a lack of access to healthcare facilities, so they are less able to get the medical care they require.

These campaigns try to close the gap in knowledge by informing people about health, encouraging good habits and providing paths to healthcare. A campaign works best when its information is simple, the right channels are selected and it shows respect for other cultures. Target audiences are more likely to appreciate a message if the advertising takes advantage of

their language and culturally important symbols. When it comes to women working on family farms, campaigns focused on how to use pesticides safely and how to avoid damage to the body from working can be very helpful. Furthermore, using community health workers (CHWs) as part of such campaigns helps them become more effective, as they usually link the health system and the community. CHWs in Punjab, India, have greatly supported maternal health by teaching people and arranging access to services (Mahajan & Kaur, 2022).

#### *Statement of the Problem*

Farm workers in rural Punjab and Sindh make essential contributions to Pakistan's agriculture, but they are often exposed to danger, do not receive needed health care and have to cope with cultural obstacles. Though many awareness campaigns have been launched, it is not yet clear whether they help female agricultural workers with their unique health problems. In these areas, many women have breathing diseases, problems with their bones and muscles, reproductive issues and mental health challenges, all of which are made worse by poverty and not enough healthcare. By promoting better knowledge, encouraging healthy habits and helping more people access health resources, health communication campaigns can help solve these problems. Even so, the low level of literacy, cultural obstacles and lacking national gender-specific health activities limit what these campaigns can achieve. This study aims to find out how well health communication efforts solve the health issues of female farm workers in Punjab and Sindh. By studying the impact and boundaries of these campaigns, the research shows how communication could be improved for the good of this marginalized population.

#### *Objectives*

- To evaluate the effectiveness of health communication campaigns to solve the health problems of women farm workers of Punjab and Sindh Pakistan.
- To identify changes in health behaviors among female farm workers after the implementation of health communication campaign.

#### *Research Question*

- How does exposure to health communication campaigns influence the awareness and knowledge of health issues among female farm workers in rural Punjab and Sindh, Pakistan?
- What is the relationship between the clarity of health messages in campaigns and the subsequent adoption of health-promoting behaviors among female farm workers?
- What socio-economic and cultural factors limit the effectiveness of health communication campaigns in improving health outcomes for female farm workers in rural Pakistan?

#### *Research Hypothesis*

- H1: Health Communication campaigns significantly affect the improvement of behaviors, health knowledge, and practices of female farm workers.
- H2: Health Communication campaigns are negatively associated with the health problems faced by female farm workers.
- H3: Influencing factors are negatively associated with the health of female workers.

## **2. Literature Review**

### *Introduction to Health Communication Campaigns*

Health communication serves as the primary tool for public health action in Nigeria. The campaign covers all health promotion activities plus disease prevention work alongside educational outreach and messaging to change how people behave (Igwe and Obeagu, 2024). The public learns about better health practices when promote vaccination combined with cleanliness and proper eating habits. Health education helps communities grow better health understanding and makes better choices about their wellness. Research shows when health information reaches the audience, they modify their actions for better disease prevention and achieve health equality (Igwe and Obeagu, 2024). During outbreaks organizations need to share important information quickly while reducing false information spread. Health promotion gains new strength when advocates create policies that use research findings to develop public health action plans. To maintain success in public health the government must work with NGOs and local communities. Digital networks and modified communications through local culture aid organizations reach more individuals. Health communication helps improve Nigerian healthcare systems and makes sure everyone has equal access to good healthcare.

Similarly, health communication campaigns function as essential tools for addressing public health problems particularly those related to physical inactivity as a non-communicable

disease. Cost-effective large-scale distribution of health messages happens through mass media platforms and digital platforms in these campaigns. The high level of message generalization combined with product marketing competition results in ineffective health communication that produces accidental outcomes such as risk behavior normalization. The effectiveness of successful public health campaigns relies on using three frameworks known as Theory of Planned Behavior, Elaboration Likelihood Model, and Extended Parallel Process Model to create audience-specific messaging (Reis et al., 2020). Targeted campaigns prove most effective when communities collaborate in their creation since this process ensures the content meets their requirements. Contemporary expertise together with artificial intelligence allows a higher level of modified communication. The analysis of “Man Therapy” shows how humor-based programs successfully reduced male stigma toward mental health care while demonstrating the need for culturally appropriate communication strategies. For successful behavior change effective campaigns must maintain ongoing assessment together with multidisciplinary teamwork and ongoing exposure (Tench and Bridge, 2021).

Twitter and other social networks serve as cost-effective platforms which expand public health campaigns because of their broad reach capabilities (Faus et al. 2021). Research has not established clear evidence about how these campaigns impact healthy behavior adoption. Research indicates that public awareness campaigns create knowledge but they yield insufficient proof to establish their impact for behavioral direction or attitudinal modifications (Faus et al. 2021). Current assessments of public health campaigns depend on insufficient measurement tools and insufficient methodology and follow-up procedures thus making their results unreliable. Research publications primarily analyze digital footprint instead of analyzing the health benefits achieved by public health campaigns (Harjumaa et al., 2016). Such campaigns face evaluation limitations due to methodological barriers when using Twitter as their platform. Twitter stands as a beneficial supplementary tool to traditional media because of its ability to attract young participants while being economical (Hong, 2013). The review emphasizes the requirement for better evaluation tools along with complete methods to measure behavioral effects while providing guidance for future health campaign development on social media platforms.

#### *Strategies for Effective Health Communication*

Japanese healthcare professionals studied their coping strategies for managing stress alongside mental health improvements conducted research aimed to detect risk elements as well as successful coping techniques (Tahara et al. 2021). A web-based survey collected data from 661 healthcare workers during the time period from April 30 to May 6, 2020 in a cross-sectional study. The General Health Questionnaire-12 (GHQ-12) alongside work satisfaction and health status and coping strategy measures was used in the survey for mental health assessment. Research data showed that mental health quality of 66.6% of respondents fell into the poor category (Tahara et al. 2021). Better mental health appeared among female participants who reduced social communication and felt high anxiety but those with good health status and work satisfaction and who participated in new activities showed superior mental wellness. People who dealt with severe mental health problems typically chose social support as their coping strategy even though escape-avoidance was the most frequently used method. The research findings establish that job satisfaction together with meaningful activities serve as protective elements which yield important implications for crisis mental health support among healthcare workers (Tahara et al. 2021).

Health communication campaigns function as vital instruments for modifying dietary choices. Studies combining multiple research analyses show health campaigns achieve an average 5% improvement in behavior outcomes and nutrition campaigns achieve somewhat better success than others (Snyder, 2007). Healthy communication campaigns achieve their objectives through defined targets combined with specific destinies while delivering adapted content. The methods for change implementation consist of media connections together with community engagement and political activism (Snyder, 2007). Research demonstrates that successful health interventions require the involvement of homogenous target groups while using credible sources through interactive technological applications. Simple yet captivating messages should be delivered through trusted sources as part of an emotionally compelling platform (Balatsoukas et al., 2015). The implementation process and effectiveness require both monitoring and evaluation for which ensure adaptable changes. Maintaining enduring behavior modification proves difficult thus further research about socialization strategies alongside budget-friendly interventions should be conducted (Snyder, 2007). The combination of media elements with counseling practices improves intervention results. Nutrition campaigns with proper organization demonstrate strong capability to modify behaviors by im-

plementing strategic implementation methods together with evidence-backed communication approaches (Canfield et al., 2021).

Health communication serves as an essential tool to decrease maternal and child death rates by promoting community involvement and rapid healthcare utilization. Participatory health communication models build interventions by letting communities directly take part in health programs (Getachew, 2013). The Health Extension Program (HEP) of Ethiopia implements these principles through birth preparedness awareness drives and enhanced medical facility transport services and community education. Interpersonal and door-to-door communication methods have proven effective in rural areas by creating direct family contact according to research investigations. Cultural differences between health facilities create barriers which affect program success rates. According to the multiplicity paradigm of development communication the focus should be on using local resources in combination with cultural awareness (Etana, 2014). Traditional beliefs continue to restrict the adoption of health services so health professionals must develop specific communication approaches. Structural investments in infrastructure along with reasonably priced transportation services together with education programs about health will lead to enduring results. By enhancing participatory communication within the HEP communities will gain more power to achieve sustainable improvements in maternal and child health outcomes.

#### *Health Communication Campaigns of Rural Women in Pakistan*

In Pakistan, health communication campaigns have been instrumental in addressing the unique health challenges faced by rural female workers, particularly in the provinces of Punjab and Sindh. The goal of such initiatives is to increase awareness, affect people's actions and help this at-risk population improve their health. In the City of Bahawalpur, Punjab, the "NourishMaa" campaign is meant to improve maternal nutrition. Because of the initiative, Lady Health Visitors are trained to teach women about family planning, immunization and prevention of diseases. Through clinic talks and home visits, Hina and other LHV's have shared new knowledge and skills with more members of their communities (Nutrition International, 2024).

Sindh is using a Gender Transformative Communication Strategy from Pathfinder International and UNFPA to help departments react to gender-based violence. Here, the strategy is to launch communication campaigns focused on correcting unsafe gender norms and helping to improve women's health and rights. Working with different actors, the initiative hopes to set up a system where rural women are not afraid of discrimination or violence when trying to access health services (UNFPA Pakistan, 2024). In rural Sindh, Community World Service Asia has built centers for health, with female team members to ensure both women and girls receive the same health support. At these centers, people can receive vaccinations, get care during pregnancy and after birth and learn about sexual and reproductive health. Since January 2020, the health team has arranged workshops about polio elimination, HIV/AIDS and family planning which have helped a number of rural women (Community World Service Asia, 2020).

The Lady Health Workers (LHW) Program is a nationwide initiative that plays a crucial role in delivering primary healthcare services to marginalized rural and urban communities. In Sindh, the program aims to expand its workforce to provide universal access to basic health services, particularly for women and children. LHWs are trained to offer preventive, promotive, and curative care, making them a vital link between the healthcare system and rural female workers (UNICEF Pakistan, n.d.).

#### *Theoretical Frameworks for Health Communication Campaigns*

The research study is based on the theoretical framework. All the knowledge is founded on this, and this is the basis of the research study. It is the basic guide, or in other words the blue print for research. A theory is defined by its coverage of the fundamentals of research, the core principles, concepts, constructs and the boundaries of the theory. As a whole, it provides the main point of how the researcher sets his research epistemologically, methodologically, philosophically and analytically (Grant & Osanloo, 2014). Theoretical framework is a road map for the researcher to reach his/her goals and it has enclosed the researcher within the given theories to contribute to the further knowledge.

The Health Belief Model (HBM) is considerable in assessing the success of health communication campaign, especially regarding the insight to determine how health risk perceptions lead to behavior change among the population. According to this model, people will find it easier to undertake actions related to health when they perceive that they are in danger of having a health problem, when they perceive that the outcome is extreme and when they

perceive that undertaking a particular action would lower the risk. In the present investigation, HBM fits in the first research aim as it examines the perceptions of health issues among female farm workers in rural Punjab and Sindh and its roles in determining the health behavior of these individuals, who are exposed to health problems like pesticides and low levels of hygiene. The constructs of the model, including the perceived susceptibility and perceived benefits, can be used to evaluate how effective the health campaigns are at making the farm workers realize the existence of these risks and encouraging them to change their practices towards healthier ones (Rosenstock et al., 2021). The results of the study concerning the positive relation between campaign exposure and the enhanced health behaviors can be considered as the implementation of the HBM since it demonstrated that the more women learn about the health risks, such as pesticide exposure and the health gains of protective behaviors, the more apt they are to alter their health-related behavior, including the use of protective equipment and the practice of improved hygiene.

Diffusion of Innovations (DOI) is also majorly used as a comprehensive model in the dissemination of how health-related messages diffuse within the community and how people embrace new health-related behaviors. DOI states that the process of adopting new ideas and behaviors is influenced by such factors as the perceived benefits of the innovation, their consistency with the existing values, easiness, testability, and visible outcomes. In this study, DOI embraces the second aim, which is a post-campaign change of behavior due to health communication campaigns. It describes the process by which rural women farm workers can incorporate new health behaviors into their lives (e.g. using more protection or better menstrual hygiene) as the result of exposure to culturally relevant health communications. The theory revolves around the essence of having social networks and community influencers; these people are able to smoothen the process of adopting the health messages among the farm workers and especially in an environment where the tradition and poor resources could be a hindrance to the uptake of the new behavior (Rogers, 2003). The study findings that show a considerable change of health behaviors upon the introduction of health campaigns point to the fact that messages consistent with local beliefs and conveyed by reputable members of the community, including local health workers, can result in the increased rates of the acceptance of health-promoting behaviours by female farm workers.

### **3. Materials and Methods**

This study employed a quantitative, cross-sectional research design to evaluate the effectiveness of health communication campaigns among female farm workers in rural Punjab and Sindh. This design was used to see how exposure to campaigns, the simplicity of health messages and trusting information sources relate to health knowledge, healthy behaviors and people's perception of their health. Data was collected from 433 females in the agricultural industry using a questionnaire survey that were selected through purposive sampling. The surveys were given in Punjabi and Sindhi by experienced field researchers who helped choose the best language for each community. Information on the questionnaire was divided into important parts: details about the audience, contact with health messages, how understandable and relevant the content was, if they trusted the information, awareness of dangers like exposure to pesticides and the lack of proper sanitation for menstruation, any actions they took as a result and how positive an impact the campaigns made on them. Participants' opinions and experiences were measured in each section using the five-point Likert scale. Data was collected from rural districts of Punjab and Sindh, which have been selected and the focus was on the female farm workers who undergo active agricultural labor. The study covered the rural parts of Bahawalpur (Yazman and Ahmadpur East), Multan (Shujabad and Jalalpur Pirwala) and Lodhran (Dunyapur and Kehror Pakka) in Punjab. The three districts of Tando Allahyar (Chamber and Nasarpur), Mirpurkhas (Digri and Jhuddo), and Matiari (Saeedabad and New Saeedabad) in Sindh were chosen. The reason to select these areas is that they are mainly agricultural, have a large number of female farm workers and have several health issues because of its poor infrastructure, lack of access to adequate healthcare and low literacy. The sample of the study was comprised of female agricultural workers in these rural areas of Punjab and Sindh.

In the present study, there was a total of 34 items that were close-ended and all were measured in a five-point Likert scale with 1 = Strongly Disagree to 5 = Strongly Agree. These were categorized under six major constructs that are Campaign Reach and Visibility, Message Clarity and Relevance, Trust and Acceptance of the Campaign, Awareness of Health Issues, Behavior Change and Health Actions Taken. The constructs were intended to measure varying levels of the effectiveness of the health communication campaign, such as exposure and

message clarity to real behavior change and perceived effect. The questionnaire was made in a way that it is easy to interpret and was easy to understand so that it could be filled in by participants with low literacy levels which is prevalent in rural areas in Punjab and Sindh. The survey contained 34 questions altogether which were closed-ended and used a Likert-type scale. The questionnaire did not have any open-ended questions because the aim was to collect a quantitative amount of information that would be statistically analyzed.

The research procedure made sure everyone involved did so in an ethical and respectful manner. Before taking the survey, respondents learned about the study and agreed to have the data kept private by signing a consent form. The team was shown how to address issues like reproductive health and the use of pesticides in a way that won over the community. The data was analyzed using SPSS which let us generate descriptive statistics and carry out regression analysis that pointed out major factors in behavior change and health awareness. While the findings are likely to provide helpful information, there are downsides like studying only two provinces, possible biased responses from self-report and the impact of some cultural taboos on the answers. Regardless, the chosen methodology is solid basis to support improvement of health communication strategies for marginalized female farm workers in Pakistan.

#### 4. Results

##### *Socio-demographic Characteristics*

According to the demographic analysis, most respondents are young and productive age, the largest age group is 25 – 34 (33.5%) and 18 – 24 (25.9%). More than four in 10 are married (47.8%) and another sizeable part are widowed (16.2%) or divorced (14.8%) which may suggest some social and economic vulnerabilities. Low educational attainment characterizes the population; 33.3% of the population have no formal education and 37.9% only primary school which suggests limited access to opportunities and information.

Rural farm labor is collective in nature and household sizes are generally large, with 67.2 percent of families comprising 4–9 members. They also have very low-income levels; 64.2% earn less than PKR 30,000 in a month showing poor economic conditions. The agricultural roles of 72.6% are fieldwork, livestock care or both, demonstrating multi-tasking and a heavy labor burden. This multi-tasking nature of farm labour draws attention to the need for any agricultural development or training programmes to include both crop and animal husbandry. In general, the paper clearly shows the need for better education, economic aid and rural development programs that are targeted.

**Table 1:** Demographic Profile of Respondents (N = 433)

Variable	Category	Frequency	Percent
Age	Below 18	29	6.7%
	18–24	112	25.9%
	25–34	145	33.5%
	35–44	87	20.1%
	45–54	43	9.9%
	55 or above	17	3.9%
Marital Status	Single	92	21.3%
	Married	207	47.8%
	Widowed	70	16.2%
	Divorced	64	14.8%
Education	No formal education	144	33.3%
	Primary school	164	37.9%
	Secondary school	76	17.6%
	High school	42	9.7%
	Above Matric	7	1.6%

Variable	Category	Frequency	Percent
Household Size	1–3 members	56	12.9%
	4–6 members	173	39.9%
	7–9 members	118	27.3%
Monthly Income (PKR)	10 or more members	86	19.9%
	Less than 20,000	119	27.5%
	20,000–30,000	159	36.7%
	30,001–40,000	90	20.8%
	40,001–50,000	40	9.2%
	50,001 or above	25	5.8%
Role in Agriculture	Fieldwork	163	37.7%
	Livestock care	99	22.9%
	Both fieldwork and livestock care	151	34.9%

#### Reliability Analysis

All the six variables are found to be highly internally consistent with Cronbach Alpha number between 0.79 and 0.88. It means that the items in each of the constructs are consistent with the measurement of a single underlying concept. Thus, the questionnaire was statistically valid and suitable in measuring the health communication effects among the rural female farm workers.

**Table 2:** Reliability analysis

Variable	Number of Items	Cronbach's Alpha
Exposure to Health Communication Campaigns	5	0.80
Health Awareness	5	0.82
Clarity of Health Messages	4	0.84
Behavior Change	6	0.86
Trust in Health Information	4	0.79
Health Behavior Adoption	4	0.88

#### Relationship between Exposure to Health Communication Campaigns and Health Awareness

Regression analysis indicates a moderate positive relation between the exposure frequency to health communication campaigns and health awareness ( $R = 0.310$ ). It explains 9.6% of the variance in health awareness ( $R^2 = 0.096$ ), suggesting that exposure to Health Communication Campaigns has a moderate influence on the level of awareness of issues concerning pesticide exposure, respiratory problems, menstrual hygiene and so on. Finally, the statistical significance of the model ( $p = 0.002$ ) shows that this relationship is not a product of random chance. However, in the Pakistani society, that rural area have little or no access to health information makes the role of health communication campaigns critical. In rural areas, women have traditionally been excluded from educational and health services (Shaheen, 2020) and thus Health Communication Campaigns act as a way to inform women of common health issues such as pesticide exposure and menstrual hygiene.

**Table 3:** Hypothesis 1- Relationship between Exposure to Health Communication Campaigns and Health Awareness

Model	R	R <sup>2</sup>	F	Sig.	B	β (Beta)	Sig.
1	0.310	0.096	9.456	0.002	0.354	0.310	0.002

### Clarity of Health Messages and Behavior Change

Regression results show that the clarity of the health messages is a predictor of behavior change, like increase use of protective gear or better hydration during work, ( $\beta = 0.412$ ). It find that the model explains 13% of the variance in behavior change ( $R^2 = 0.130$ ) which indicates that such behavior changes are highly influenced by whether health messages are clear and well communicated. This hypothesis is further supported by the statistical significance of the coefficient for message clarity ( $p = 0.000$ ). Health messages have to be clear in rural Pakistan where literacy rates may be low and people need to change their behaviour. Simple and clear health messages are more likely to be understood and adopted by a population, especially in a low literacy population (Nazir & Ghaffar, 2018).

**Table 4:** Hypothesis 2- Clarity of Health Messages and Behavior Change

Model	R	R <sup>2</sup>	F	Sig.	B	$\beta$ (Beta)	Sig.
1	0.360	0.130	13.121	0.000	0.412	0.360	0.000

### Trust in Health Information and Health Behavior Adoption

The analysis finds that greater trust in the health information given by campaign organizers is positively associated with the likelihood of adopting health behaviors ( $\beta = 0.467$ ). Results of this model explain 17.6% of the variance in health behavior adoption ( $R^2 = 0.176$ ), signifying that trust in the source of information has a role in motivating behavioral change. Furthermore, the hypothesis is supported by the real effect ( $p = 0.000$ ) that trust has on customers. In Pakistan and most importantly in rural communities, changing behavior is strongly influenced by trust in healthcare providers and other sources of information. Findings indicate that people living in rural areas often trust messages from familiar sources more than distant and new sources (Mahmood et al., 2020).

**Table 5:** Hypothesis 3- Trust in Health Information and Health Behavior Adoption

Model	R	R <sup>2</sup>	F	Sig.	B	$\beta$ (Beta)	Sig.
1	0.420	0.176	16.472	0.000	0.467	0.420	0.000

## 5. Discussion

The research shows that health communication campaigns help provide positive health benefits to female farmers in rural Punjab and Sindh. More than half of the respondents said they had seen or heard health messages and a lot of them also reported learning more about menstrual hygiene (58.5%) and sun safety (55.1%). The outcomes confirm that effective health campaigns can help bring about changes in behavior, based on the Theory of Planned Behavior which names knowledge, attitude and action as the basis for such changes (Tench & Bridge, 2021). Using language and messages that respond to local culture, reported by 44.3% of participants, helped improve acceptance and understanding, proved essential in improving message comprehension and receptivity, consistent with Kreps (2008). The interpersonal approach, particularly through female health workers, reinforced the role of trust and relatability in effective communication, echoing Shaheen et al. (2024).

Furthermore, trust in the campaign's health information emerged as a critical factor, with 47.1% of participants expressing confidence in the information provided. However, gaps remain, particularly for those who found health messages difficult to understand (21%), pointing to the need for more accessible communication strategies such as visual aids and oral storytelling. Rehman et al. (2021) emphasize the importance of multi-channel approaches, including mobile phones and face-to-face communication, to increase campaign reach. The results confirm that when health campaigns are linguistically and culturally tailored, they improve health literacy and empower female farm workers to adopt healthier practices, supporting



previous findings by Motta et al. (2021) and Faus et al. (2022) on the role of trust and accessibility in public health campaigns.

Regarding the second hypothesis, the study establishes a clear inverse relationship between exposure to health communication campaigns and the prevalence of health problems such as respiratory illnesses, musculoskeletal disorders, and pesticide-related conditions. Participants exposed to these campaigns reported fewer health issues, with 50.1% acknowledging that messages addressed problems like body pain and 43.8% receiving guidance on pesticide safety. These findings reinforce the role of preventive education in mitigating occupational health risks, in line with the work of Tarar et al. (2016) and Moreira et al. (2024), who emphasized awareness as a critical factor in reducing pesticide exposure and related health complications. Activities that covered the correct way to use personal protective equipment seem to have improved health measures in the communities.

In addition, reproductive health concerns were also addressed, with over half the respondents (58.5%) noting improved knowledge in menstrual hygiene—a critical but often neglected issue in rural health. This aligns with the Health Belief Model, which posits that awareness of risks and benefits drives behavioral change (Rosenstock, 1974). However, structural barriers such as inadequate healthcare access persist, with 43% of respondents citing difficulty in accessing services. This supports the conclusion by Ezadi et al. (2022) that health education must be coupled with improvements in healthcare infrastructure. While campaigns are making a measurable impact, their potential is limited without broader systemic support, especially in underserved regions.

The third hypothesis explores the negative association between influencing factors—such as socio-economic status, education, access to healthcare, and cultural barriers—and female farm workers' health. The study confirms this relationship, showing that 33.3% of respondents had no formal education and 37.9% only completed primary school, limiting their ability to comprehend and act on health messages. This finding is consistent with Vimal et al. (2023), who highlighted literacy as a major barrier to effective health behavior change. Similarly, low income (with over 64% earning under PKR 30,000 monthly) and difficult access to healthcare (reported by 43%) restrict the ability of women to seek care or adopt safety measures, corroborating the work of Parveen et al. (2025) and Ezadi et al. (2022).

Occupational and cultural factors further exacerbate health issues. Many women perform both fieldwork and livestock care, increasing their exposure to physical strain and agrochemicals, a pattern documented by Gandhi et al. (2012) and Kalita et al. (2023). In some settings, facing challenges like divorce or being a widow, as well as strict gender rules, stops women from accessing healthcare, explains Azad et al. (2024). It seems clear that health results emerge from linked social determinants, in line with Gyimah et al. (2024), who highlighted the value of boosting several types of livelihood capitals. Although health campaigns are important, the best way to ensure health changes lasts is to combine education, economic programs and health facilities.

## 6. Conclusion

This paper shows that health communication campaigns do enhance health knowledge, behavior, and practices of female farm workers in rural Punjab and Sindh substantially. Such campaigns led to increased awareness of health hazards, including the use of pesticides, pulmonary diseases, and menstrual hygiene that resulted in safer farming and better individual hygiene. Culturally specific messages that were clear and delivered by local health personnel who were trusted, were effective in the area of producing behavior change especially in low levels of literacy. Belief in the source of health information rose as a major determinant of the adoption of protective health behaviors, and it is therefore important that familiar and credible voices are used in rural communities. Nevertheless, socio-economic and cultural barriers are great challenges. The problem with low educational levels, lack of access to healthcare services, and conservative gender standards preclude the potential of such campaigns. Health communication campaigns are useful, but they do not have much effect when they are not used to solve other socio-economic problems. The combination of health education and education, healthcare access, and economic conditions will increase the sustainability of the health outcomes of this disadvantaged group of people in rural Pakistan.



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## References

- Azad, A. H., Ali, I., Nazir, F., Anjum, M. U., Raza, M. A., Dar, A. A., ... & Wazir, P. (2024). Evaluating The Efficacy Of Cognitive Behavioral Therapy For Amphetamine Use Disorder: Impact Of Socio-Demographic And Behavioral Factors In Pakistan. *Journal of Ayub Medical College Abbottabad*, 36(4 (Suppl 1)).
- Balatsoukas, P., Kennedy, C. M., Buchan, I., Powell, J., & Ainsworth, J. (2015). The role of social network technologies in online health promotion: a narrative review of theoretical and empirical factors influencing intervention effectiveness. *Journal of medical Internet research*, 17(6), e141.
- Brooke-Friley, L. (2024). Influencing health through communication theory: Development of a persuasive campaign for a nonprofit community health center. *Communication Teacher*, 38(2), 147-161.
- Canfield, K. N., Mulvaney, K., & Merrill, N. (2021). Messaging on slow impacts: applying lessons learned from climate change communication to catalyze and improve marine nutrient communication. *Frontiers in environmental science*, 9, 619606.
- Community World Service Asia. (2020). Raising awareness and influencing behavioral change towards health education in rural Sindh. Community World Service, <https://communityworldservice.asia/raising-awareness-and-influencing-behavioral-change-towards-health-education-in-rural-sindh/>
- Dutta, M. J., Kaur-Gill, S., & Metuamate, S. (2024). Decolonizing impact through the culture-centered approach to health communication: Mobilizing communities to transform the structural determinants of health. *Health Communication*, 1-9.
- Etana, A. (2014). The characteristics of development paradigms: Modernization, dependency, & multiplicity. *Development Paradigms/Discourse*.
- Ezadi, Z., Mohammadi, N., Sarwari, R., & Jafari, S. M. (2022). Afghan women and access to health care in the past 25 years. *EClinicalMedicine*, 43.
- Faus, M., Alonso, F., Javadinejad, A., & Useche, S. A. (2022). Are social networks effective in promoting healthy behaviors? A systematic review of evaluations of public health campaigns broadcast on Twitter. *Frontiers in Public Health*, 10, 1045645.
- Faus, M., Alonso, F., Javadinejad, A., & Useche, S. A. (2022). Are social networks effective in promoting healthy behaviors? A systematic review of evaluations of public health campaigns broadcast on Twitter. *Frontiers in Public Health*, 10, 1045645.
- Gandhi, S., Dilbaghi, M., Mehta, M., & Pruthi, N. (2012). Occupational health hazards & efficacy of protective masks in threshing operation. *Work*, 41(Supplement 1), 4983-4986.
- Getachew, H. (2013). A Study of Health Communication Practice to Reduce Maternal and Child Mortality in the rural areas of the Amhara Region: Baso liben Woreda in Focus (Doctoral dissertation, MA Thesis Unpublished), Addis Ababa University).
- Glanz, K., Rimer, B. K., & Viswanath, K. (2008). Theory, research, and practice in health behavior and health education.
- Harjumaa, M., Saraniemi, S., Pekkarinen, S., Lappi, M., Similä, H., & Isomursu, M. (2016). Feasibility of digital footprint data for health analytics and services: an explorative pilot study. *BMC medical informatics and decision making*, 16, 1-9.
- Hong, S. (2013). Who benefits from Twitter? Social media and political competition in the US House of Representatives. *Government Information Quarterly*, 30(4), 464-472.
- Igwe, M. C., & Obeagu, E. I. (2024). The Scopes and Implications of Health Communication in Public Health Practices in Nigeria. *J Bacteriol Mycol*, 11(1), 1218.
- Mahajan, N., & Kaur, B. (2022). Community health workers in rural Punjab, India: analyzing their role, expectations and challenges. *Journal of Health Research*, 36(2), 255-264.
- Mahmood, N., Siddiqui, M., & Ali, S. (2020). Trust in health information in rural Pakistan: A barrier to healthcare utilization. *International Journal of Health Communication*, 34(5), 412-421.
- Moreira, A., & Vieira da Silva, M. (2024). Analysis of health effects reported by agricultural workers and the adverse human effects Indicated on pesticide labels: A systematic review. *Agriculture*, 14(10), 1669.
- Motta, M., Sylvester, S., Callaghan, T., & Lunz-Trujillo, K. (2021). Encouraging COVID-19 vaccine uptake through effective health communication. *Frontiers in Political Science*, 3, 630133.
- Nazir, H., & Ghaffar, A. (2018). Health behavior change in rural Pakistan: The role of clarity in health messaging. *Journal of Rural Education and Health*, 9(1), 25-33.
- Nutrition International. (2024, Nov. 28). Nurturing change: A health worker's mission to improve maternal nutrition in Pakistan. *Nutrition International*. <https://www.nutritionintl.org/news/all-field-stories/health-worker-improves-maternal-nutrition-pakistan-nourishmaa/>
- Ojinaga, L. C., von Glascoe, C., Valdés, C. M., & García, E. A. (2013). Occupational risks and health: perceptions of indigenous female agricultural workers in Northwestern Mexico. *Salud colectiva*, 9(2), 247-256.
- Reis, E., Arriaga, P., Moleiro, C., & Hospital, X. (2020). Pictorial campaigns on intimate partner violence focusing on victimized men: a systematic content analysis. *Frontiers in psychology*, 11, 1450.
- Shaheen, N., Ngoma, C., Adebisi, Y. A., & Glover, M. (2024). Lady health workers smoking cessation initiative in rural Pakistan. *Discover Global Society*, 2(1), 88.
- Shaheen, S. (2020). The role of Health Communication Campaigns in improving hygiene and health behaviors in rural communities of Pakistan. *Pakistani Journal of Health Research*, 16(2), 67-75.
- Snyder, L. B. (2007). Health communication campaigns and their impact on behavior. *Journal of nutrition education and behavior*, 39(2), S32-S40.
- Sood, S., Shefner-Rogers, C., & Skinner, J. (2014). Health communication campaigns in developing countries. *Journal of creative communications*, 9(1), 67-84.

- Tahara, M., Mashizume, Y., & Takahashi, K. (2021). Coping mechanisms: Exploring strategies utilized by Japanese healthcare workers to reduce stress and improve mental health during the COVID-19 pandemic. *International journal of environmental research and public health*, 18(1), 131.
- Tarar, M. A., Fatima, T., Salik, M. H., Akhtar, S., Khan, Y. N., Sultan, T., ... & Yasmin, S. (2016). Health problems faced by female farm workers in rural areas of Tehsil Dera Ghazi Khan: A sociological investigation. *Journal of the Dow University of Health Sciences (JDUHS)*, 10(1), 35-38.
- Tench, R., & Bridge, G. (2021). Developing Effective Health Communication Campaigns. *Strategic Communication in Context: Theoretical Debates and Applied Research*, 69-86.
- Tench, R., & Bridge, G. (2021). Developing Effective Health Communication Campaigns. *Strategic Communication in Context: Theoretical Debates and Applied Research*, 69-86.
- Udoudom, U., Igiri, A., George, K., & Aruku, K. J. (2024). Promoting Health Education through Effective Communication for Development. *ALSYSTECH Journal of Education Technology*, 2(1), 68-88.
- UNFPA Pakistan. (2024, July 26). Gender Transformative Communication Strategy. UNFPA, <https://pakistan.unfpa.org/en/publications/gender-transformative-communication-strategy>
- UNICEF Pakistan. (n.d.). Lady Health Workers Programme in Pakistan. UNICEF Pakistan, <https://www.unicef.org/pakistan/reports/performance-evaluation-report-lady-health-workers-programme-pakistan>
- Vimal, V., Kamble, R., & Pandit, S. (2023). Comparative ergonomic assessment of manual harvesting of un-lodged and lodged paddy crops post-tropical cyclone in India. *International Archives of Occupational and Environmental Health*, 96(3), 367-376.