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WHO DID REALLY COUNT IN CHILD AND MATERNAL NUTRITION PROGRAMS IN PAKISTAN? A RETROSPECTIVE ANALYSIS IN THE CONTEXT OF MDGs PERIOD

Attaullah Jan[1*], Syed Saleem Shah[2], Iftikhar Alam[3*], Ishrat Ali Bhatti[4]

[1*,3*,4]Department of Human Nutrition and Dietetics, Bacha Khan University Charsadda, Khyber Pakhtunkhwa, Pakistan
[2]Department of Agriculture, Bacha Khan University Charsadda, Khyber Pakhtunkhwa, Pakistan

***Corresponding Author:** Attaullah Jan, Iftikhar Alam
*Department of Human Nutrition and Dietetics, Bacha Khan University Charsadda, Khyber Pakhtunkhwa, Pakistan. Email: atta.umerzai@gmail.com
*Department of Human Nutrition and Dietetics, Bacha Khan University Charsadda, Khyber Pakhtunkhwa, Pakistan. Email: iftikharalam@bkuc.edu.pk

Abstract
Malnutrition, a significant health problem of developing world including Pakistan, needs to be tackled with a multisectoral approach since no single agency is responsible for nutrition. The present cross-sectional observational study used the Millennium Development Goals (MDGs) era as a case study to retrospectively identify the key stakeholders' characteristics related to nutrition for child and mother and how these characteristics influence stakeholders' salience. The study utilized mixed methodology that included review of published official documents and interviews of the relevant stakeholders. Utilizing the expertise of the experts, we retrospectively identified and examined stakeholders for child and maternal nutrition throughout the MDGs period in Pakistan. Based on the nature of their interactions, positions, and degree of participation, stakeholders' characteristics (power, legitimacy, and urgency) were evaluated. Planning and development (P&D), provincial governments (P-Gov), the media, the ministry of health (MoH), "Parliament," and non-governmental organizations (NGOs) were identified as the most significant stakeholder groups for MDGs related to maternal and child nutrition (n=16). In conclusion, stakeholders involved in the MDGs for child and maternal nutrition had different stakeholder characteristics (such as power, legitimacy, and urgency), which may have contributed to Pakistan's low performance on these topics.

Keywords: Stakeholders' Attributes, Child and Maternal Nutrition, MDGs, Pakistan

INTRODUCTION
Malnutrition is a common health problem of developing world including Pakistan. In particular, the most vulnerable groups for malnutrition are children and mothers. Pakistan was distinguished as one of the seven nations that represented around 33% of the world's undernourished populace [1]. Numerous countries in the time of the Millenium Development Goals (MDGs) era (2000-2015) prevailed with regards to decreasing the pace of child and maternal undernutrition, however there was lopsided improvement. Most of Asian nations saw sensational decreases, yet progress in Pakistan was less uplifting, and the general number of hindered kids expanded because of populace extension. Globally, this improvement hit a wall about 2014 and is currently regressing, as noted by the State of

Food Security and Nutrition in the World 2019 [2]. Multiple socio-economic factors including poverty and food insecurity along with poor social practices, unhealthy dietary and lifestyle patterns are responsible for widespread malnutrition. Keeping in view that malnutrition is a multisectoral health issue, multistakeholder and multisectoral collaborations are becoming more common in the efforts against malnutrition [3,4]. Growing consensus exist that complex, multi-faceted problems like child and mother malnutrition need for holistic approaches that bring together the resources, knowledge, and experience of many stakeholders. Implementing the 2030 Agenda and the SDGs will require extensive use of multistakeholders partnerships [5], which bring together governments, international organizations, civil society, and corporate sector players. Partnerships have grown in popularity as a tool for nutrition policymakers to combat issues like obesity and non-communicable diseases linked to poor dietary habits, undernourishment and hunger.

But there may be complications if a large variety of people were brought into the decision-making process. Engaging stakeholders may be beneficial if done well, but it also comes with a price tag in terms of time and money [4,6]. For instance, as stakeholders' interests often diverge, disagreements about how to proceed are commonplace. If reaching an agreement is the goal in such a situation, it might take some time. In addition, if stakeholders' suggestions are not included into the final choices, the participants may see their involvement as tokenistic [4,7]. Finally, power imbalances, in which "powerful" stakeholders dominate and overly influence the processes, are common in participatory decision-making settings that are not well facilitated to ensure that all stakeholders have an equal chance to participate [4]. Understanding the nature of this impact and balancing the power imbalances requires doing a stakeholder analysis.

An outstanding example of multisectoral cooperation in nutrition may be the MDGs era in the recent past [8]. While the developed world succeeded in achieving most of the goals and targets set by the MDGs by adopting multisectoral approach, the developing world on the other hand, mostly failed to achieve these goals. Ineffective governance, poor performance and undermining ownership – centrally planned, top-down approaches to foreign technical assistance programs failed to build sustainable capacity as they remained donor-driven and not demand-driven. The fact that majority of technical assistance projects fail on at least one measure of success makes a case for conducting lessons learnt reviews to benefit others embarking on similar projects. A post-mortem of such technical assistance programs yield several insights. Transitioning from MDGs to SDGs (Sustainable Development Goals) has been credited for helping to shape and revitalize a global agenda for social, environmental, and economic development [9]. The primary takeaways from the MDGs period include the need for more cross-sectoral decision-making and solutions, as well as a clearer recognition of the links between development objectives and initiatives to avoid silo approaches of the Sustainable Development Agenda is "Partnerships for the Goals," which emphasizes the need of strong collaborative action, such as multi-stakeholder partnerships (MSPs) that include representatives from the private, public, and nonprofit sectors [10.11]. No doubt, the SDGs benefit from the important illustrations gained from MDGs. These likewise convey forward the incomplete agenda of MDGs for coherence and support the energy created while tending to the extra difficulties of comprehensiveness, value, and urbanization and further reinforcing worldwide organization by including the private sectors. They reflect congruity and solidification of MDGs while making these more feasible by reinforcing ecological objectives.

Like most of the developing countries, Pakistan didn’t perform well in achieving the nutrition goals and targets set by the MDGs, in general, and those related to nutrition for children and mothers, in particular [12]. Although, Pakistan adopted the multistakeholder partnerships strategy for all activities mandated by the MDGs, it is our strong observation that there were numerous missing links for this multisectoral coordination [12]. Various partners, government departments, civil society organizations and international agencies might have not been well-coordinated and connected for the

same cause – child and mother malnutrition [12]. The question then would be how effectively various partners and stakeholders would have been coordinated for the same cause. We believe that a stakeholders' analysis, to gauge the stakeholders' attributes, would have been a possible mechanism to find out the answer for such questions. Our credence stands on the view that assessment of stakeholders' attributes helps in clear identification of the strong and the weak stakeholders in a multi-sectoral strategic coordination. Stakeholders are classified on the basis of their involvement in the planning process (strong–weak) and their impact on the process (strong–weak) [13]. This led to a classification scheme, based on the work of Eden and Ackermann [14] with four categories of stakeholders, that is, (1) stakeholders who participate in "decision-making," (2) stakeholders who "think along," (3) stakeholders who want to be "informed," and (4) stakeholders who take on a "steering" role in the planning process. Stakeholders (actors) may be strong in many personal respects, while lacking the experience, knowledge, and resources necessary for effective participation in cocreation. In order to level the playing field and give all the stakeholders a fair chance of being heard and influencing joint decisions, empowering the weaker stakeholders and reminding the stronger stakeholders that they may marginalize or scare off less resourceful participants if they fail to make room for their valuable contributions. To avoid marginalization and defection, stronger stakeholders must also learn to restrain themselves and curb their temptation to muscle their way through joint decisions. In other words, there is need of using different tools to address and mitigate resource asymmetries in order to facilitate effective participation and fruitful collaboration [15]. Nevertheless, both strong and weak stakeholders can affect the success of any project. While a weak stakeholder lags behind in the process thus negatively affecting a program, a strong stakeholder, on the other hand, may overshadow the whole process and turn things in its own favor. Analyzing the characteristics of stakeholders and how they impact the decision-making process is the goal of stakeholder analysis [16]. This may include assessing and understanding stakeholders about how an organization is built or determining their importance to a project. Pakistan has the potential to develop multisectoral partnerships as the policies and programs of the country generally have the scope to mandate multi-sector and multi stakeholder partnerships especially in areas of food security, nutrition and health. However, there is also a need to learn from the past experiences and learn lessons from the performance of mega-projects like the MDGs.

Therefore, the present study was designed on the notion that despite the widespread acknowledgement and success of multistakeholder approach in the eradication of malnutrition, little if any consideration is given to this approach in the developing countries (i.e. Pakistan) and thus are poorly reported. Care of nutritional health cannot be restricted to a single domain or department in the healthcare system. Rather multiple actors should be considered as part of the healthcare system. For this reason, all stakeholders in the healthcare system must be clearly identified with their power and responsibilities. The benefits and drawbacks of each stakeholder may be determined by doing a stakeholder analysis. In order to effectively address the pressing issue of widespread child and maternal malnutrition, it is essential to include stakeholder analysis into policymaking concerning child and maternal nutrition, an aspect that is necessarily missing both in the official documents and research data. Insights from throughout the world [17-19] will reveal that even with widespread engagement, stakeholders may not be able to exert much influence unless policymakers are particularly perceptive in selecting influential stakeholders who are well-versed in the problems at hand. The purpose of this research was to evaluate the efficacy of the salience stakeholder analysis framework in determining which stakeholders are the most important to consider when establishing healthcare priorities. The specific goals are as follows: 1) to identify and analyze the roles played by various stakeholders for nutrition-related MDGs for both children and mothers; and 2) to apply the salience stakeholder analysis framework to identify the most critical stakeholders for nutrition-related MDGs for both children and mothers. To the best of our knowledge, there has been no previous data available on stakeholders' analysis. We anticipate that this study's findings will inform our understanding of stakeholder interests, patterns, and behaviors; specifically, we hope to learn more about how different stakeholders

act to advance their own goals, how policymakers react to stakeholder pressure, and how they determine which interests to prioritize when making decisions. Stakeholders' involvement in the development of child and maternal nutrition policies was analyzed using the stakeholder salience model. This framework provides three stakeholder salience analysis variables, including urgency, legitimacy, and power, to determine which stakeholders play the most significant role in shaping policies pertaining to maternal and infant nutrition.

METHODS

Study Context

Pakistan was a signatory to the MDGs and showed its commitment to promptly address malnutrition as one of the important agenda items of the MDGs program. The MDGs activities came to an end in 2015 with numerous nutrition-related targets that were left unfinished. An analysis of those unfinished MDGs targets was considered warrant by the research team and, therefore, in 2021, a research study was planned to retrospectively analyze the nutrition-related MDGs targets. Retrospective analysis of nutrition program is not uncommon. There have been research studies conducted retrospectively to analyze the past programs and projects with different objectives but mostly with the aim to conduct a postmortem and learn the takeaways for future planning and programs [20]. The use of social network analysis quantified the structure and strengths of the interpersonal networks between stakeholder members during the intervention period and lesson learned are used for future planning. In the context of Pakistan, there has been growing research interest in the factors responsible for poor performance on the MDGs in general and those related to the child and maternal nutrition, in particular.

To support practical implementation at the national and regional level, the experience with the MDGs points out that goals and targets should be designed to ensure accountability. It has to be clear “who does what” and who is responsible for outcomes and shortcomings. In addition, the implementation of goals requires mobilizing financial resources, institutional solutions for cross-sectoral coordination within governments, and regional cooperation to address transboundary issues. Against this context, Pakistan has immense commitment for a successful conclusion of the SDG as witnessed by a great number of initiatives launched to boost up the efforts for uplifting child and maternal nutrition [21]. We believe that there have been enough learning opportunities from the MDGs era that can help in carrying on the SDGs agenda with success.

Study Design

This research used a cross-sectional observational study design, and it relied on interviews with relevant *experts* and an examination of relevant policy papers.

Study *Settings* and population

The research study was conducted in the Khyber Pakhtunkhwa (KPK) province of Pakistan. The preliminary research work was started in 2022. An extensive desk review took place followed by review of national and provincial policy papers and conducting of interviews with experts and policymakers at both levels. Previous published literature describes the organization of the Pakistani healthcare system, as well as the healthcare priority procedures and issues [22].

Basically, under the supervision of Pakistan's centralized healthcare system, the federal government is in charge of setting broad goals and conducting regular evaluations, while the provinces are in charge of carrying them out. The decision-makers at the national level are participating in the prioritization process. As in other developing nations, the national healthcare priority procedures in Pakistan include a wide range of (non-state) parties due to the inadequate funding for the health sector. Regrettably, the interests of these stakeholders aren't always congruent with national priorities, and their authority has been called into doubt as a result [22]. Findings of the present work are based on a survey conducted for the purposes of the first author's PhD dissertation.

Samplings

Respondents for the present study were experts (ex-service men, government officials, workers from various NGOs and academicians and researchers in the fields of health and nutrition, preferably in the field of child and maternal health/nutrition). Experts were selected using a hybrid of stratified random sampling and snowball techniques. After extensive discussion, our research team was of the view to select two cities – Islamabad (the country capital city) and Peshawar (the provincial capital city) as the two sample strata. This selection was made based on the assumption that great majority of the potential experts might had their work and/or residence address of these two cities. In addition to this stratified sampling, snowball sampling was done in order to include experts deemed important by the respondents of these two main cities. The experts were asked to mention all other experts they knew, who had filed and/or research experience in child and maternal nutrition and health. in addition, experts were considered relevant if they had sufficient theoretical and applied understanding of the MDGs in general, and the MDGs pertaining to maternal and child nutrition in particular. Participants were selected because of their prominence in determining priorities at the national and global levels.

Although participation from all segments was not equal, the inclusion criterion of the respondents was set so as the participants were expert, professional and highly knowledgeable with respect to the child and maternal nutrition and the related issues in their respective departments and sections. For experts from academia and research, at least 5 scientific publications in the field of nutrition and 2 extra publications in health and/or nutrition policy were required for consideration for membership on the panel. In addition, experts with more than 5 years of experience in their field were given priority. Subject expertise constitutes an established knowledge base, where participants' professions or first-hand lived experiences represent the unique understanding of the subjects of interest [23]. The choice and range of the desired expertise depends on the objective, however including representatives of the target population is considered an important component, due to their familiarity with the construct through direct personal experience [23]. Hence, eligibility criteria for subject experts were that they had to be policymakers, academicians, and/or researchers with relevant knowledge and experience.

The particular profile of the panelists (e.g. years of experience, field of expertise, etc.) is guided by the aims of the study [24] defined as expert those professionals with at least 5 years of experience in research or clinical treatment [25] or required that experts had published at least one relevant publication as first or leading author in a peer-reviewed journal [26] or required a minimum of 5 years of clinical experience and more than 50 articles authored in peer-reviewed journals. Regarding the sample size, Diamond et al. (2014) reported that 54% of the panels were made up of fewer than 25 experts [27] and these produced stable results [27,28], similar to those obtained with more experts [29]. In the present study, experts were defined as professionals with field and/or research experience in child and maternal nutrition. Field experience was assessed through years of reported experience, whereas research experience was assessed through the number of child and maternal nutrition-related papers published in peer-reviewed journals. We prioritized the recruitment of experts with both field and research experience (a minimum of 5 year of field experience and at least two articles published in peer-reviewed journals). However, we also considered experts with experience in only one setting when they reported substantial field experience only ($\geq$ 5 years) or high research achievement only ($\geq$ 5 papers). For the current study, the aim of these criteria was threefold: (1) to include different kinds of expertise, (2) to include different opinions (as the criteria used retained experts independently of their adhesion or reluctance in including child and maternal nutrition in nomenclature systems) and (3) to ensure geographic representativeness [30].

In terms of sample size, we planned to recruit between 30 and 45 experts (which was judged by the research team as an ideal balance between efforts needed for panel management and stability of results). Geographical representativeness of experts may help to ensure generalizability of results; thus, we attempted to have a panel that was as nationally representative as possible with international

reputation [30]. Online available research papers in addition to the he Ministry of Health's website were used to locate potential experts on a nationwide scale. After conducting preliminary interviews or phone calls with the experts, we asked them to recommend further sources of information. Through these methods, a list of 107 national experts on child and maternal nutrition was generated. These 107 potential experts were then categorized and ranked according to their residence, research impact and clinical experience. Data were extracted from public sources: place of residence was extracted from experts' affiliation, research impact was assessed by analyzing their publications' profile and h-index (in Scopus) and field experience was assessed based on available information (clinical experience reported in publicly available CV, belonging to a particular department, section or institution and organization). This preliminary classification was used to identify the experts that would be personally contacted by the research team. In order to ensure maximum representativeness, less stringent criteria for research impact (i.e. 5 research papers) were used to permit the inclusion of experts as Pakistan belong to the list of under-represented countries. This contact e-mail included a description of the study and a link to a brief on-line survey. This survey included questions about field and/or research experience on child and maternal nutrition in order to assess experts' eligibility. Of the initial 85 initially identified invitations, 27 experts (31.8%) did not answer the e-mail message, 7 (8.2%) declined to participate and the remaining 51 (61.4%) agreed to participate and completed the eligibility survey. After analyzing eligibility criteria, 2 (2.4%) experts were excluded because they did not match the requested criteria (they reported no clinical experience and published the required scientific papers). Of those who met inclusion criteria, all 49 met the criteria and were included in the expert panel.

Data Collection

Before actual data collection, a workshop ('Stakeholders and the MDGs Period') was held in March, 2022. The main objective of the workshop was to elaborate on the nutrition policy status in Pakistan. The proceedings of the workshop have already been published [31]. The workshop was followed by Focus Group Discussion (FGD) sessions. The details of the FDGs are provided elsewhere [32]. Briefly, group interviews guided by a set of four questions were conducted. These questions were: (i) which stakeholders are involved in child and maternal nutrition in the KP province of Pakistan? (ii) what roles do they play in the child and maternal nutrition practices? (iii) how do they interact? (iv) how do they influence decision making in relation to these practices?

We believed that the workshop followed by an elaborated FGD had significantly explained the objective of the study. Therefore, for formal data collection, a questionnaire was designed with both close-ended and open-ended questions. In general, the questionnaire contained three main parts. Part I asked the experts about the general demographic information (age, gender, marital status etc), field of study, area of practical experience etc. Part II of the questionnaire focused on questions related to the stakeholders who had a role in the MDGs era for child and mother nutrition; their general roles and interests; the pattern of their participation in activities, particularly, in the decision-making process, potential barriers and obstacles etc.

To facilitate the respondents' ability to answer the questions, we provided the following precise definitions of the qualities of the stakeholders. The respondents were requested to respond using a five-point Likert scale.

1. *MDGs child and mother nutrition power:* stakeholder's assessed ability to impact MDG child and mother nutrition management choices (1 = no potential; 5 = extremely strong potential);
2. *MDGs child and mother nutrition urgency (demands):*impact stakeholders are expected to have on MDG nutrition policy choices for children and mothers (1 = no demands; 5 = extremely strong demands);
3. *MDGs child and mother nutrition legitimacy:* validity of stakeholder demands (1 = no legitimacy; 5 = extremely high legitimacy) on infant and maternal nutrition in the Millennium Development Goals.

4. *MDGs child and mother nutrition stakeholder salience:* experts' preference for one stakeholder's claims over another, as evaluated by how often data on MDGs child and mother nutrition is shared with a certain stakeholder (where 1 means never and 5 means often). Each of the attributes (power, urgency, legitimacy, and salience) had further constructs as previously reported (Buniamin, 2020).(33) For instance, there were three constructs for power: P1, P2, and P3.

P1: this stakeholder group has the capacity to use direct economic impact (money, goods, services, etc.) to achieve its goals;
P2: this stakeholder group has the capacity to use physical force (threat, alert, caution, etc.) to achieve its goals; and
P3: this stakeholder group has the capacity to use social influence (reputation, prestige, media, etc.) to achieve its goals. In similar way, urgency, legitimacy and salience had three constructs each. The details can be found in the supplementary File 1. The mean score obtained from the individual scores of all the constructs of power, urgency, legitimacy and salience were used for further analysis (Buniamin, 2020). (33) Tables in supplementary File 1 provides details of individual score of these constructs.

Reflexivity

A multidisciplinary team consisting of a PhD student trained in conducting qualitative research (AJ); an associate professor in nutrition with ample experience in social network analysis and qualitative research (IA); a professor expert in data analysis (SPSS); a post-graduate student (IABT) expert in data collection and analysis. In general, the team included various levels of experience and was knowledgeable about literature on nutrition, health policy management and, education. In an effort to maximize the contributions of these different backgrounds, the team was thoroughly involved in various aspects of the research, such as developing the interview guide, reviewing transcripts to provide feedback to the interviewer, and analyzing data through extensive discussions. All questionnaires were administered by the PhD student and responses on the Likert scale were received by him. The PhD research student was also responsible for communication with the experts' panel and conducting the interviews, FGDs and a series of seminars and workshops.

Statistical Analysis

Each expert evaluated stakeholders according to *salience* and to the three nutritional attributes power, urgency, and legitimacy. The quantitative data was analyzed and expressed as means and standard deviation. At first, we undertook a descriptive analysis to find out whether some stakeholders or attributes are more important than others. For each attribute, the mean values of the 16 stakeholders were compared to see if there were any significant differences between them. We then carried out a correlation analysis of the salience of the different stakeholders in order to find out if there were any similarities among the stakeholders.

Through bivariate correlation analysis, multiple linear regression models and Kruskal-Wallis tests we tried to explain environmental stakeholder salience in terms of their environmental attributes (power, urgency, legitimacy, co-operation). Finally, we applied bivariate analyses and logistic regression models in order to control for the influences of company- and product-related factors on environmental salience. A p-value <0.05 was considered statistically significant. All the statistical analyses on quantitative data were performed in SPSS Software (IBM SPSS Statistics for Windows, Version 28.0. Armonk, NY: IBM Corp).

This study was carried out in accordance with the established ethical norms and procedures after approval by the relevant bodies of the Bacha Khan University Charsadda. Under the direction of the Graduate Study Committee (GSC) and the Advanced Study and Research Board (ASRB), Bacha Khan University Charsadda, we have used a methodologically and ethically sound approach to collecting and processing data for this project. Bilateral agreements on data protection have contributed to this. By taking part in the survey, respondents acknowledged and agreed to our data protection rules.

RESULTS AND DISCUSSION

Descriptive Data

Each member of the experts' panel evaluated stakeholders according to salience and to the three nutrition MDGs for child and maternal attributes: power, urgency, and legitimacy. Table 1 shows mean (STD) values of power, urgency, legitimacy and salience associated to stakeholders by the expert participants of this study. The highest-rated characteristics across all five stakeholder groups were: P&D, P_Govt, Media, MoH, and the parliament. NGOs was also scored the highest scores for all these attributes except for urgency (3.9). P&D had the highest score for all attributes followed by P-Gov. The other three (Media, MoH, and the parliament) had almost similar scores.

We examined the links between the 'salience' of various stakeholders to see whether they have any commonalities. As can be seen in Table 2, there were positive and statistically significant associations between the relative importance of most stakeholders. This suggests that stakeholders that prioritized MDGs for maternal and child nutrition are often aligned with other stakeholders. Charities, then political parties, then elites, etc., were the only kind of stakeholders that showed little to no correlation with one another.

Table 1: Descriptive Analysis (Mean Scores) *

Stakeholders	Power	Urgency	Legitimacy	Salience
P&D	4.7 (0.153)	4.8 (0.058)	4.8 (0.058)	4.8 (0.058)
P_Gov	4.4 (0.265)	4.4 (0.100)	4.7 (0.100)	4.5 (0153)
Media	4.3 (0.115)	4 (0.001)	4.5 (0.058)	4.3 (0.200)
MoH	4.3 (0.058)	4.1 (0.058)	4.5 (0.252)	4.3 (0.200)
Parliament	4.1 (0.057)	4.5 (0.300)	4.2 (0.057)	4.3 (0.208)
NGOs	4.1 (0.208)	3.9 (0.153)	4.2 (0.058)	4.1 (0.153)
AgD	3.6 (0.153)	3.5 (0.400)	4.1 (0.400)	3.7 (0.321)
PWD	3.7 (0.208)	3.6 (0.058)	3.6 (0.001)	3.7 (0.100)
MoE	3.5 (0.058)	3.5 (0.000)	3 (0.451)	3.5 (0.058)
Acad	3.2 (0.404)	3.5 (0.001)	3 (0.351)	3.4 (0.173)
BoI	3.2 (0.058)	3.3 (.0200)	3 (0.651)	3.3 (0.153)
MoST	3 (0.351)	3.2 (0.058)	2.8 (0.500)	3.2 (0.252)
Livestock	2.8 (0.789)	3.6 (0.100)	2.6 (0.252)	3.3 (0.436)
Elites	2.8 (0.608)	2.7 (0.100)	2.4 (0.351)	3 (0.433)
PParties	3.5 (0.100)	2.5 (0.099)	2.2 (0.058)	3.2 (0.577)
Charity	2.5 (0.231)	2.3 (0.100)	2.1 (0.400)	2.8 (0.643)

*Mean score of 'power', urgency', 'Legitimacy', and 'Salience' were calculated using data on the constructs of these attributes (Supplementary File 1); Provincial government (p_Gov), Planning and Development Department (P&D), Ministry of Health (MoH), Board of Investment (BoI), Population Welfare Department (PWD), Agriculture Department (AgD), Ministry of economics (MoE), Ministry of Science and Technology (MoST), Non-governmental Organizations (NGOs), Media (Med), and Political Parties (PParties)

Table 2: correlation between stakeholders' child and nutrition MDGs Salience (Spearman coefficient)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. P&D																
2. P_Gov	**0.56**															
3. Media	**0.41**	0.16														
4. MoH	**0.54**	**0.47**	**0.4**													
5. Parliament	**0.3**	**0.35**	**0.35**	**0.51**												
6. NGOs	**0.47**	0.24	**0.27**	**0.29**	**0.49**											
7. AgD	**0.62**	0.12	0.07	**0.33**	**0.41**	**0.53**										

8. PWD	**0.36**	**0.42**	0.18	**0.43**	0.12	**0.54**	**0.33**									
9. MoE	**0.48**	**0.34**	0.21	**0.28**	0.23	**0.53**	0.11	0.15								
10. Acad	**0.32**	0.25	0.14	**0.48**	0.14	**0.42**	0.13	**0.32**	**0.36**							
11. BoI	**0.38**	0.13	0.12	0.13	**0.58**	**0.28**	0.16	0.13	**0.35**	**0.31**						
12. MoST	**0.38**	0.12	0.15	**0.33**	**0.45**	0.09	**0.28**	**0.29**	0.26	**0.34**	**0.33**					
13. Livestock	**0.48**	**0.41**	0.01	**0.27**	**0.46**	**0.35**	0.15	0.17	0.23	**0.29**	**0.54**	**0.37**				
14. Elites	0.1	0.12	0.2	0.17	0.11	**0.37**	0.18	0.14	**0.36**	**0.38**	**0.43**	0.23	**0.37**			
15. PParties	0.13	0.2	0.2	**0.44**	**0.35**	0.26	0.11	0.16	0.16	**0.29**	0.19	**0.35**	**0.34**	0.11		
16. Charity	0.16	0.19	0.13	**0.28**	0.16	0.19	0.21	0.18	0.18	0.13	0.12	0.27	0.12	0.08	0.09	

Provincial government (p_Gov), Planning and Development Department (P&D), Ministry of Health (MoH), Board of Investment (BoI), Population Welfare Department (PWD), Agriculture Department (AgD), Ministry of economics (MoE), Ministry of Science and Technology (MoST), Non-governmental Organizations (NGOs), Media (Med) and Political Parties (PParties)

Bivariate correlation analysis and then stepwise multiple linear regression analysis are used to determine what variables contribute to the extent of salience. In both cases, the importance of each stakeholder is treated as the dependent variable, while the other characteristics, such as influence, timeliness, and validity, are treated as the independent variables. All bivariate associations are positive and statistically significant, as seen in Table 3. The coefficients of correlation are anywhere in the range of 0.12 to 0.62. It's obvious that every aspect of a stakeholder has an impact on how visible they are. However, virtually all stakeholders place a larger value on urgency and legitimacy than they do on attribute power. Moreover, certain stakeholders (such as Political Parties, Acad, Elites, BoI, Charity) place less emphasis on these outcomes than others (such as P&D, MoH, P_Gov, Parliament etc).

Table 3. Bivariate correlation analysis (Spearman coefficients)

	P&D	P_Gov	Media	MoH	Parliament	NGOs	AgD	PWD	MoE	Acad	BoI	MoST	Livestock	Elites	PParties	Charity
Power	0.42**	0.31**	0.29**	0.40***	0.38**	0.32**	0.21*	0.23**	0.32**	0.21	0.19	0.32**	0.37**	0.32**	0.37*	0.13
Urgency	0.41**	0.32**	0.31**	0.35**	0.37**	0.42**	0.31**	0.21**	0.38**	0.19	0.2	0.15	0.32**	0.22	0.31**	0.12
Legitimacy	0.62***	0.41***	0.38**	0.59***	0.41**	0.51***	0.48***	0.42**	0.52***	0.41***	0.38**	0.61***	0.43**	0.31**	0.34**	0.32**

Significance: *** $p < 0.001$; ** $p < 0.010$; * $p < 0.050$

Provincial government (p_Gov), Planning and Development Department (P&D), Ministry of Health (MoH), Board of Investment (BoI), Population Welfare Department (PWD), Agriculture Department (AgD), Ministry of economics (MoE), Ministry of Science and Technology (MoST), Non-governmental Organizations (NGOs), Media (Med) and Political Parties (PParties).

When these variables are considered independently, the bivariate correlation analysis provides some evidence for our hypothesis that power, urgency, and legitimacy impact a stakeholder's salience positively. In contrast, potential interrelations between the various variables are also included in multiple linear regression analysis. Table 4 displays the outcomes of the used regression models. The regression coefficients for the 16 analyses are also included in Table 4. All insignificant variables were removed from the equations one by one (stepwise procedure) to prevent over-parametrization. Most of the time, a single independent variable was all that was needed to provide a reliable prediction of the dependent variable (in this example, the importance of meeting the MDGs for child and maternal nutrition). Although power is never a bad thing, it turned out to be less crucial than time and credibility. None of the stakeholders chose to leave out the latter two factors while developing their final model. They seem to be the most important determinants of MDG focus on maternal and infant nutrition.

Table 4. Analyses of multiple regressions

		Non-standardized coefficients		
		B	standard error	p
P&D	Constant	1.654	0.1353	0.001
F = 62.210; p = 0.000	Urgency	0.376	0.121	0.000
R^2 adjusted=0.478	Legitimacy	0.431	0.064	0.000
P_Gov	Constant	2.221	0.243	0.000
F = 41.221; *p* = 0.000	Urgency	0.276	0.122	0.000
R^2 adjusted = 0.301	Legitimacy	0.286	0.056	0.001
Media	Constant	1.212	0.198	0.000
F = 43.352; *p* = 0.000	Urgency	0.281	0.043	0.001
R^2 adjusted= 0.321	Legitimacy	0.279	0.062	0.000
MoH	Constant	0.17	0.242	0.003
F = 432.129; p = 0.000	Urgency	0.342	0.071	0.000
R2 adjusted = 0.443	Legitimacy	0.221	0.067	0.003
Parliament	Constant	0.649	0.112	0.000
F = 67.8532; p = 0.000	Urgency	0.332	0.643	0.000
R2 adjusted = 0.398	Legitimacy	0.321	0.056	0.000
NGOs	Constant	1.106	0.195	0.000
F =42.386; p = 0.000	Urgency	0.431	0.061	0.001
R2 adjusted = 0.231	Legitimacy	0.191	0.056	0.008
AgD	Constant	0.198	0.121	0.000
F =56.3211 ; p = 0.000	Urgency	0.428	0.023	0.000
R2 adjusted = 0.321	Legitimacy	0.323	0.076	0.000
PWD	Constant	1.134	0.198	0.000
F =4.3782; p = 0.000	Urgency	0.411	0.034	0.000
R2 adjusted = 0.297	Legitimacy	0.273	0.078	0.000
MoE	Constant	1.101	0.187	0.000
F =44.329; p = 0.000	Urgency	0.382	0.061	0.000
R2 adjusted = 0.298	Legitimacy	0.222	0.049	0.001
Acad	Constant	0.897	0.121	0.000
F =34.678; p = 0.000	Urgency	0.323	0.087	0.000
R2 adjusted = 0.243	Legitimacy	0.329	0.087	0.000
BoI	Constant	0.368	0.156	0.031
F =43.5672 ; p = 0.000	Urgency	0.402	0.101	0.000
R2 adjusted = 0.234	Legitimacy	0.238	0.119	0.000
MoST	Constant	0.121	0.129	0.177
F =58.387; p = 0.000	Urgency	0.498	0.059	0.000
R2 adjusted = 0.310	Power	0.159	0.057	0.001
Livstocks	Constant	0.167	0.112	0.110
F =48.511; p = 0.000	Urgency	0.342	0.078	0.000
R2 adjusted = 0.376	Legitimacy	0.221	0.056	0.000
	Power	0.22	0.054	0.000
Elites	Constant	0.589	0.127	0.000
F =52.543; p = 0.000	Urgency	0.445	0.049	0.000
R2 adjusted = 0.331	Legitimacy	0.289	0.076	0.000
PParties	Constant	0.498	0.145	0.000
F =56.021; p = 0.000	Urgency	0.456	0.037	0.000
R2 adjusted = 0.327	Legitimacy	0.283	0.046	0.000
Charities	Constant	0.577	0.159	0.000
F =52.052 ; p = 0.000	Urgency	0.443	0.051	0.000
R2 adjusted = 0.329	Legitimacy	0.287	0.059	0.000

Provincial government (p_Gov), Planning and Development Department (P&D), Ministry of Health (MoH), Board of Investment (BoI), Population Welfare Department (PWD), Agriculture Department (AgD), Ministry of economics (MoE), Ministry of Science and Technology (MoST), Non-

governmental Organizations (NGOs), Media (Med), and Political Parties (PParties)

DISCUSSION

To the best of our knowledge, this the first study retrospectively investigating the stakeholders' characteristics who were actors in child and maternal nutrition during the MDGs era. Our findings of this study suggest that "P&D (planning and development)," "provincial government (P-Gov)," "Media," "Ministry of Health," "Parliament," and "Non-governmental Organizations" (NGOs) are the most influential, urgent, legitimate, and salient stakeholder groups when it comes to achieving the nutrition MDGs goals for children and mothers. These stakeholder groups are deemed most essential by experts only when considering the prominence of nutrition MDGs for child and mother or the actual interaction among stakeholders on nutrition MDGs for child and mother concerns. Our research lends credence to the hypothesis of stakeholder salience. The findings clearly show, however, that not all factors equally define the importance of MDGs linked to nutrition for child and mother stakeholders. Nutritional Millennium Development Goals (MDGs) for mothers and children are most strongly influenced by their perceived urgency. One possible application is that stakeholders who only see other stakeholders as strong or legitimate may avoid engaging with them on MDGs linked to maternal and child nutrition. It is remarkable that authority or legitimacy is not included in most definitions of the word "stakeholder"[34]. Instead, the urgency with which a stakeholder demand may be communicated seems to be more crucial.

When there are several stakeholders with conflicting interests, few resources, and competing requirements, a stakeholder power analysis may be an invaluable tool for making the right choice. It may be used to assess potential future outcomes as well as present policies and institutions. The key is to pose questions such, "Whose problem is this anyway?" Which party gains? Who is hurt by this? Is there a clear picture of who has what kind of influence on whom? How much of an impact do they really make? By analyzing the responses to these questions, we may pinpoint the systems and interpersonal dynamics that require strengthening or altering in order to mitigate undesirable effects and maximize desirable ones. In light of this, the stakeholder salience model [34], three major indicators of power, urgency, and legitimacy were used to examine and identify the stakeholders' ability in the current research. This is the first research to our knowledge to examine the characteristics of stakeholders that establish their importance, credibility, and influence. As far as we know, no previous studies have analyzed health and nutrition stakeholders and their characteristics in this manner in Pakistan.

Overall, there was a lack of data when we looked through the literature. Both the policy environment and the policy itself have been the subject of the previous research [35-38], and hence necessarily lacked the data on stakeholders responsible for the operationalization of these policies. Clearly, a wide knowledge gap existed that needed to be filled with information on the types of stakeholders and their characteristics (power, urgency and legitimacy). Given that most projects will not have the funding or time to involve all stakeholders who have been identified as potential contributors, what criteria are useful for selecting those to be invited to participate? Selecting stakeholders based on legitimacy, power and urgency ensures that the most relevant stakeholders are involved, which is generally not the case if they are selected on practicalities alone. Nevertheless, practicalities cannot be completely ignored. Assessment of stakeholders against the criteria of legitimacy, power and urgency may require input from a diverse group of advisers, who have different insights into the various stakeholders, including from direct knowledge, observations and their own research. Assessments become particularly important when selecting stakeholders with opposing views on a problem, bearing in mind that including stakeholders in research confers legitimacy on them and their perspectives. In such cases a balance has to be found between what the stakeholders can offer the research and the legitimacy that being invited to contribute confers. The current research helps fill up some of those

gaps. The report's stated objective is to "document the stakeholders for child and mother nutrition MDGs in Pakistan."

Partnerships between public and private actors may cause conflicts between business incentives and public health goals, while being marketed as viable remedies to complex development issues that need knowledge and resources from several sectors. Companies with a vested interest in preventing government regulation of the food and beverage industry may seek to reframe malnutrition issues in a way that benefits their bottom line (by casting blame on consumers rather than systemic factors, for example). However, such perverse impact may be mitigated if conflicts of interest are properly avoided and managed. How and who should establish "the rules of the game" is an open subject. In this light, the current research found that the P&D received the highest score for all stakeholder traits, whereas other, equally significant stakeholders (i.e., "Academia," "livestock," and "charity") were seen to have lower scores. In fact, P&D is the most influential group in the whole area of child and maternal nutrition, from policymaking to implementation. When it comes to healthcare policy, the Planning and Development Division has traditionally played a crucial role. While it is the responsibility of the federal Ministry of Health (now the Ministry of National Health Services, Regulations, and Coordination) and the Planning Commission to formulate national health and nutrition policies, it is the responsibility of the provinces to plan and implement these policies. However, the 'Parliament' was rated worse across the board as a stakeholder. Members of Parliament in Pakistan seem to care very little about the nation's nutritional and public health crises. Pakistan is one of the nations that fell short of meeting the MDGs. It's shocking that no one in authority has been held responsible for the country's dismal showing on international measures of health. The government is committed to the Sustainable Development Goals (SDGs) beyond 2015, despite the fact that they are far more difficult to attain than the MDGs [39]. To accomplish international public health security, for example, by confining and managing the many infectious illnesses common in the country, Pakistan is a party to other international obligations and rules. Public health funding in Pakistan has been consistently inadequate and has failed to increase over time since there has never been a political impetus behind its creation. However, Pakistan has some of the highest out-of-pocket health care costs, which is a big factor in the country's low incomes. This is the case regardless of the ruling party's professed political ideology or the promises made in their election manifestos, implying that promises to adhere to principles of distributive fairness have not been kept. Health has not been recognized as a constitutional right because successive political leaderships have shied away from seeing healthcare as a common good rather than a commercial commodity [40]. As stakeholders for maternal and infant nutrition, political parties predictably scored worse across the board. Pakistani politicians have demonstrated an affinity for providing localized help through patronage networks, which has stunted the growth of broad-based support for universal social service provision [22].

LIMITATIONS

This empirical research has several obvious caveats. To start, people who fill out surveys often lie about their accomplishments or other positive aspects of themselves. Because of the social sensitivity associated with the topic of nutrition, some respondents may have exaggerated the qualities of some stakeholders with regards to the nutritional status of children and mothers. The maternal and child nutrition Millennium Development Goals have also been explored in a broad sense, without focusing on any specific issues. More in-depth and nuanced understanding of the nutrition for child and mother management process might be gained from studies on stakeholders to more particular to nutrition for child and mother situations. Exploring the stakeholders' interactions, especially the dynamic features of stakeholders' relationships, in the context of a developing nation like Pakistan may prove to be a very difficult endeavor. Both the lack of any secondary data and the tremendous instability in the political climate make primary data collecting an uphill battle. One of our first goals was to research the partnerships between MNCs and NGOs. Archival materials and semi-structured interviews were the primary sources of data collection. Triangulation was achieved by the use of archival sources. The stakeholder connections of case study organizations were mapped using historical materials prior to

conducting interviews. After conducting the interviews, we returned to the historical materials to locate and match the supporting evidence for the conclusions. More than 500 pages of archival information were compiled from various sources. All interviews followed the same pattern of questions. Each participant was given the option of having their interview done in either English or Urdu. A trained assistant recorded the interviews in the format preferred by each subject, whether its audio alone, video only, or both. Two of the interviews refused to be recorded on video or audio, therefore notes were taken instead.

Following previous work [36, 42,43], we find that stakeholder salience is in fact dynamic and that the configuration of stakeholders continues changing over time. Stakeholder configurations are always shifting because of the dynamic business environment [44]. However, the paradigm we provide does not detail and categorize the conditions under which managers give a latent stakeholder greater weight than a definite one. This raises some interesting questions that may be investigated further. Data from a single source may potentially introduce bias into the analysis. Our research also has the flaw of favoring groups with similar members. We presume that different stakeholders within a group are the same when we think about different stakeholder groups like funders, commercial banks, shareholders, etc. Recognizing the diversity of stakeholder groups will allow for the inclusion of more subgroups in future studies. Simple questions were asked of respondents who had direct experience with the event/situation to establish the reliability and validity of the retrospective data [45]. This study used a two-tail case design to interview people who had been with the case study companies both before and after their transition [46]. In addition, the correct application of theoretical ideas and replication logic were used to increase the study's external validity.

Surveys, interviews, and archive materials were the three most often employed data gathering techniques in empirical studies in the stakeholder salience paradigm. There are benefits and cons to all three data collecting strategies. For instance, surveys have been called into question due to the predetermined group of people they invite to respond [42]. This might lead to include or eliminating those that are ultimately unimportant. Data from a single source may potentially introduce bias into the analysis. The limited time span inherent in survey research is another drawback of the method. The ability to look at the phenomena of stakeholder salience over a lengthy period of time is made possible by archival materials. However, this strategy is less effective when used alone. This approach fails to capture the phenomena of stakeholder salience since it is grounded on managers' perceptions [34]. Also structured interviews follow a predetermined path of questioning and provide what can be called "casual inferences" about stakeholder connections [47], but they might be tainted by bias from poorly formulated questions and erroneous data from poor memory. Evidence was gathered using i) archival documents and ii) semi-structured interviews, with the benefits and drawbacks of each approach taken into consideration. Multiple sources, such as evaluation reports and yearly performance reports, were mined for archival data pertaining to the stakeholder connections of the case study organizations. General malnutrition is common in Pakistan [48-57], and future studies should address this on priority.

CONCLUSION

In conclusion, multiple-stakeholders for nutrition MDGs for child and mother had diverse stakeholders' attributes. This heterogeneity in stakeholders' attributes among the stakeholders may be one reason for inadequate performance of Pakistan on the child and mother nutrition issues.

DATA AVAILABILITY

The present research paper is part of a PhD thesis of the first author. Therefore, part of the data may be made available on reasonable request according to the policies of Bacha Khan University Charsadda.

CONFLICT OF INTEREST

All authors declare 'no conflict of interest'

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