Article

Compliance with COVID-19 Regulations among Palestinian Citizens of Israel in the Context of Social Norms and Gender Roles

Mohammad Khatib [1,2,3,*], Ivonne Mansbach-Kleinfeld [1], Doaa Zaid [1], Anneke Ifrah [4], Malik Yousef [5] and Ahmad Sheikh Muhammad [1]

1 The Galilee Society, The Arab National Society for Health Research & Services, Shefa-Amr 20200, Israel; ivonnekm@netvision.net.il (I.M.-K.); doaa.zaid@gmail.com (D.Z.); amuhammad@gal-soc.org (A.S.M.)
2 School of Public Health, Faculty of Welfare and Health Studies, Haifa University, Haifa 3103301, Israel
3 Department of Nursing, Zefat Academic College, Zefat 13206, Israel
4 Israel Center for Disease Control, Ministry of Health, Jerusalem 9446724, Israel; annekeifrah@yahoo.com
5 Department of Information Systems, Zefat Academic College, Zefat 13206, Israel; malik.yousef@gmail.com
* Correspondence: khatib.health@gmail.com

Abstract: This paper examines the compliance with official recommendations to restrict COVID-19 contagion during the second wave (August–November 2020) among a sample of Palestinian citizens of Israel ($N = 1536$), aged 18 or more. The dependent variables included the compliance with keeping social distance, using masks, washing hands, avoiding social gatherings, and unnecessary shopping. The independent variables included sociodemographic and health-related factors and beliefs regarding the susceptibility to and seriousness of COVID-19. Special attention was paid to analyzing the content of the recommendations and the behavioral changes required vis-à-vis the norms and values of the population studied. Factor and content analyses yielded two distinct sets of recommendations, which were conceptualized as 'Adopting New Behaviors' and 'Renouncing Usual Behaviors'. Compliance rates for the adoption of new behaviors ranged between 80.5 and 90.3% and were higher in women than men ($p < 0.002$; $p < 0.001$; $p < 0.001$). Compliance rates for the renunciation of usual behaviors ranged between 47.1 and 60.4%. Educational level was positively associated with the compliance with recommendations requiring the renouncing of usual behaviors among men but not among women. The particular values and gender norms and the culture-based reasons for noncompliance among minority populations that were proposed using this method must be identified so that they inform authorities' strategies to increase compliance with recommendations.

Keywords: COVID-19; compliance; recommendations; Palestinian citizens of Israel; Arabs in Israel; minority; women's roles; norms and values

1. Introduction

COVID-19 cases were first identified in Israel in February 2020, and the common belief then was that the virus affected mostly the more affluent population traveling to Europe for winter ski holidays. As Palestinian citizens of Israel (also known in the relevant literature as Arabs in Israel) are mainly in the lower socioeconomic ranks, it was generally assumed they would be exempt from contagion, and indeed, during the first wave (March–May 2020), rates of COVID-19 were much lower than those in the general population [1]. Unfortunately, the delay in the arrival of COVID-19 among Arabs in Israel was accompanied by a delay in the dissemination of official information in Arabic regarding the disease [2] and a lack of inclusion of health experts from Arab society in decision-making bodies [3]. The Ministry of Health of Israel, lacking pandemic preparedness much like the rest of the world [4,5], provided only meager and incomplete information in Arabic on how to slow the spread of the virus; a failure interpreted by Arab citizens as a sign of disregard from Israeli authorities

for their well-being [6]. Only at the beginning of April 2020 did the Ministry of Health begin providing updated information in accurate Arabic. The lower contagion rate of Arabs in Israel, however, changed course and greatly increased during the second wave of COVID-19 (August–November 2020). During this period, there were frequent complaints in the Israeli press regarding the lack of compliance with regulations pertaining to the avoidance of social and family visits and gatherings among Arabs in Israel [7], as well as among the Jewish ultra-Orthodox minority. Women in these minority groups continued visiting and caring for the elderly and sick in the family, and on the other hand, men, women, and children continued participating in crowded social events, such as wedding celebrations and funerals [8].

With the continuing surge of COVID-19 waves well into 2022, it has become increasingly clear that vaccination alone, which many expected would make the need for behavioral changes redundant, is not sufficient to restrain the spread of the virus and that the adoption of the behavioral changes recommended by public health services worldwide, in particular social distancing and mask wearing [9], will still be in the future an indispensable part of the strategy to restrict the contagion. It is therefore essential to gain an understanding of the factors that increase or limit compliance with the required behaviors in the context of the particular socioeconomic and cultural characteristics of the Arab minority in Israel. Studying their responses in times of a crisis such as the COVID-19 pandemic can contribute to the understanding of the behaviors and needs of other disadvantaged and minority populations living in the midst of a frequently hostile and discriminating majority [10].

Following, we present a description of the Arab population in Israel and a brief review of the variables commonly associated with the compliance with COVID-19 recommendations.

1.1. Sociodemographic Status of Palestinian Citizens of Israel

Arabs in Israel are an indigenous group that constitutes 21% of Israeli citizens; nearly 80% of them are Muslim, 9% Druze, 10% Christian, and 1% belong to other smaller religious groups [11]. Arabs in Israel have individual civil rights albeit with a disadvantaged de jure status in relation to Jewish citizens (see Basic Law: Israel as the Nation-State of the Jewish People). This disadvantage is expressed in many spheres, such as in lower socioeconomic status, higher unemployment rates, lower educational levels, and political and social marginalization [12]. In 2021, 38.8% of the Arabs in Israel, 49% of Arab children, and 38.9% of their elderly lived below the poverty line, whereas among non-Orthodox Jews, the average poverty rate for all ages was 11.9%, 13.2% for children, and 15.3% for the elderly [13]. High poverty levels have been intensified by the lack of development and government investment in infrastructure, health services, and the educational system in Arab cities and towns [14]. Arabs in Israel have poorer health and poorer self-rated health than the Jewish majority [15].

Personal insecurity due to increasing levels of organized crime and violence is also a daily concern for all Arabs in Israel [16]. Before COVID-19, nearly 37% of Arab men aged 18–23 were not in education, employment, or training (NEET) [17]. This situation worsened during the pandemic [13]. With few choices available for young people, one solution is to join the ranks of organized crime, which is rampant in Arab cities and towns in Israel [18].

Employment among Arab women is much lower than that of their counterparts in the general population (37% as compared with 77%, respectively) [14]. Low employment rates are mostly attributable to limited opportunities due to the segregation of their towns and villages and to institutional discrimination, lack of appropriate access to public transportation, and fewer childcare solutions: only 8% of subsidies for daycare centers in 2020 were allocated to the Arab population, while toddlers in this group comprise 24% of all toddlers in Israel [19].

Localities in Israel are assigned a rank according to their socioeconomic conditions, which can be used as a gross proxy measure for socioeconomic status [20]. In Israel, 95% of Arab localities, as compared to 17% of Jewish localities, are found in the four lowest

socioeconomic ranks [21]. Most Arabs in Israel live on the geographic periphery. The mainly Bedouin population in the Southern District is younger than the population in other districts (49% are aged 0–14 years), has a large shortage of health, education, and welfare services, lacks physical infrastructure and employment, and approximately 31% of families report having difficult or extremely difficult living standards, while about 50% of families hardly succeed in securing their monthly needs or do not succeed at all [22].

1.2. Gender Roles among Arabs in Israel

According to Sabbah-Karkabi (2022), patriarchal norms regarding gender roles and family orientation continue to be upheld, and "gendered social values continue to shape family life" [23] (p. 2) for Arabs in Israel. "Sociocultural, economic, and political processes were shown to be essential to maintaining family patterns, and educated families, especially those who live in Palestinian localities [Arab cities in Israel], are committed to an established community structure in many aspects of their lives" (pp. 5–6). The importance of keeping traditional values and roles has been dealt with by Blau (1964), who addressed the subject of control mechanisms in cohesive groups and how social control strengthens the group and its individual members, particularly in discriminated and oppressed societies [24]. Blau explains the need for reciprocity in social exchange as a symbol of mutual support, much needed in close-knit communities that are frequently discriminated against by mainstream society.

Haj-Yahia and Lavee (2018) claim that although there are variations among Arabs in Israel according mainly to educational level and type of locality, changes in family patterns can be observed insofar as women's education and paid work is concerned; still, most groups are patriarchal and "spouses live together with their husband's extended family, thus restricting the nuclear unit's space, its boundaries and its authority" [25] (p. 16). A study among the Bedouin Arab minority in Israel maintains that they are characterized by "collectivistic, authoritarian and patriarchal values ... [and] gender and age-based inequality are prevalent" [26] (p. 2). The impact on the modernization process of an increased level of education and reduction in the size of rural society due to the scarcity of land is limited because "Arab cities in Israel are similar to large villages. In Arab cities in Israel, industrialization and economic development—the most significant characteristics of cities that promote processes of modernization—are almost entirely absent ... [with] underdeveloped infrastructure, an absence of industrial plants ... and few industrial zones" [25] (p. 29), while intergenerational solidarity due to widespread religious observance, frequent contact between generations, and an agreement on patterns of parenting and marriage help preserve traditional social norms.

Studies on the division of household tasks among Arab families in Israel have dealt with routine housework and childcare, but few studies deal with a woman's caring role for the family's elderly and sick, which requires distinct skills and attitudes from those involved in childcare and has different costs insofar as the emotional involvement, time expenditure, motivation, and physical strength involved. A study among women aged 60 and older found that Arab society in general and Bedouin Arab society in particular commonly accept that women are the main caregivers who should look after family members, mainly those who suffer from physical or mental illnesses, and that younger women should look after older women [26]. Ayalon found that adult children who care for older family members "do it out of duty and respect. Many emphasized their religious tradition that promotes elder care ... [and] emotional and religious obligations ... which dictate strong family solidarity and intergenerational care of the younger generation toward older family members" [27] (pp. 846–847). However, she claims care is not shared equally, and it is usually a daughter or daughter-in-law who carries the load. The role of women as the main caretakers of the elderly and sick in the family is not limited to Arabs in Israel, and studies in other countries have found, not unexpectedly, that more daughters than sons provide care to their elderly parents [28].

Although there is an increasing conflict between traditional gender roles and the expectations of the growing number of higher-educated working women, still "one of the traditional roles of Muslim Arab women [in Israel] is to be the caregiver, and in particular take care of older members of the family" [29] (p. 2207).

Sabbah-Karkaby found that among Arabs in Israel, higher-educated men whose spouse has a similar educational level are more likely than those with a lower educational level to share childcare, although "it seems that when there are children in the 0–5 years age range, which require more intensive caring, it falls mainly on women as social expectations dictate that she is to be the main caregiver" [23] (p. 15).

1.3. Compliance and Gender, Education, Occupation, Age, Chronic Disease, and the Presence of COVID-19 in the Family

Most studies on the relationship between gender and compliance with health-related mandates report that women are more likely than men to agree with restraining measures regarding COVID-19 and to comply with them [30–32]. Surveys carried out through social media worldwide and among Arabs in Israel have found higher compliance rates among women than men and higher general compliance rates among older than younger participants [33]. Paramita and others [34] stress the importance of social structure and cultural beliefs when explaining gender differences in compliance with COVID-19 containment measures in traditional population groups and maintain that compliance is better explained by the 'traditional vs. egalitarian' gender role dichotomy than the 'male–female' dichotomy. Studies in developing countries where women have a subordinate role in the household in relation to men have found that women report less compliance or worse self-management than men because they give precedence to the needs of their family members before their own [35].

Education has been found in most studies carried out in Western societies to be positively associated to compliance with COVID-19 containment measures [31]. Those with lower socioeconomic status are overrepresented among essential workers who cannot exercise proper social distancing, and during the COVID-19 pandemic, a major concern affecting compliance among Arabs in Israel was the loss of income [36].

Older persons have been found to have higher compliance rates than younger persons, and this has been mainly attributed to greater risk-taking behavior as well as there being fewer symptoms and a less severity of the disease among younger people [37]. Regarding chronic conditions, a study including 11 countries found a higher compliance among those with chronic conditions than among those without a chronic illness [38]. Additionally, higher compliance rates were found among those who had been infected with COVID-19 or had an infected family member [39].

1.4. Compliance and Perceptions Regarding the Vulnerability to Infection and the Seriousness of the Disease

The Health Belief Model (HMB) [29] is a popular theoretical framework used to analyze and predict people's preventive health behaviors and their compliance with medical advice [40]. One of its key components is the individual's perceived risk of contracting a disease, which has been found to be correlated significantly with the adoption of preventive health behaviors in diverse populations [40,41]. A study on the self-perceived risk of contracting COVID-19 found that the only consistent predictor for keeping social distance and improved hand hygiene was the fear of COVID-19 [42]. Other studies confirm that the belief in one's personal risk of infection predicts a greater probability of engaging in hand washing and social distancing [43]. In contrast, another study assessing social distancing and mask wearing in the US found that neither the perceived nor actual risk predicted social distancing and mask wearing, but rather, the better predictors were political party affiliation and belief in the importance of compliance [44]. Another study noted that the "perceived severity . . . may depend on other non-personal factors such as the proximity of the study population to high risk areas, information, or even the phase of the pandemic in which surveys were administered" [45] (p. 8). A study in Germany found that a lower

educational level was associated with a higher perceived severity but a lower perceived probability of being at risk [31]. Regarding the effectiveness of the behavioral change, Georgieva and others [38] found that "people do not mind experiencing a degree of discomfort if they are convinced that the containment measures are effective" (p. 3816). A study including a large international sample found that the strongest facilitators of compliance were wanting to protect the self, feeling a responsibility to protect the community, and being able to work or study remotely, while the strongest barriers included having friends or family who needed help with errands and the need for socializing in order to avoid feeling lonely [46].

1.5. Compliance and the Content of the Recommendations and Behavioral Changes Required

An important question when analyzing compliance with different recommendations is whether each recommendation should be considered as involving distinct actions that embody and demand specific behavioral changes—and then the emphasis is placed on the characteristics of the recommendation—or whether they should be combined into an overall composite 'compliance index', where the emphasis is placed on the characteristics of the individual who is expected to comply. The choice has important implications insofar as the strategies that the authorities need to adopt in order to increase compliance. Most studies conceptualize compliance with different recommendations as a single composite index that pits 'compliers against noncompliers' [30,47,48]. Wright and others [37] studied compliance with mandates similar to those in the present study and found high levels of compliance with wearing masks and indoor/outdoor mixing, and somewhat lower rates with hand sanitation and social distancing. However, in their conclusions, they did not analyze the content of the recommendations themselves but rather emphasized the demographic characteristics of the respondents, stating that "most individuals reported broad consistent levels of compliance across the six behaviors . . . [and that] individuals choose to comply with all guidelines, rather than some but not others" [37] (p. 250).

Given the cultural differences among the different population groups in Israel, it is important to specifically address the implications of the particular actions required by each recommendation and the potential conflict between the values and norms of Arabs in Israel and the expected behavioral changes. For instance, Goren and others, when analyzing Arab society in Israel, claim that when "members of social groups regard the government's policies as inappropriate for their lifestyles and cultural practices, there will be a weaker association between their technical ability to comply with the government's instructions and their actual intentions of doing so" [49] (p. 3).

This paper assesses compliance with the official recommendations to adopt specific behaviors proclaimed by the government to limit COVID-19 contagion, i.e., maintaining a physical distance when interacting with others, wearing face masks, washing hands after social encounters, avoiding visiting family and friends, and avoiding unnecessary shopping. Compliance is assessed vis-à-vis three sets of independent variables, namely, sociodemographic characteristics of the population, characteristics of the threatening disease as perceived by the population, and characteristics of the recommendations themselves, that is, the behavioral changes they require. These variables are analyzed in the context of the specific gender norms and values of the Arab society in Israel.

2. Materials and Methods

2.1. Study Population

This cross-sectional study comprised a representative sample of Arabs in Israel and included 1536 subjects, aged 18 years or more, who live in localities defined as Arab localities, mixed Arab–Jewish localities, or unrecognized villages (villages whose existence is not officially recognized by Israel and are not provided with basic services by the government). Of the subjects, 81.7% identified themselves as Muslim, 8.9% as Druze, and 9.4% as Christian, proportions that are very similar to their actual representation in the population of Arabs in Israel. Very small religious denominations were not found among

the respondents. The geographical division into districts is in accordance with the definition of the Ministry of the Interior of Israel [20].

2.2. Sampling Design

Subjects were chosen from 85 Arab localities within four geographical districts (Northern District, Haifa District, Central District, and Southern District). The sample size was calculated according to four age clusters (18–34; 35–44; 45–54; ≥55) and each cluster with a sample size of 384 according to the following equation:

$$n_h = t^2 \, p(1 - p)/e^2 \qquad (h = 1\text{–}4)$$

$$n_h = 1.96^2 \times 0.5 \times (1 - 0.5)/(0.05^2) = 384 \qquad (h = 1\text{–}4)$$

The total sample size was 1536 as follows:

$$N = 384 \times 4 = 1536$$

n_h: the number of persons in one stratification level.

$p = 0.5$: the rate of diffusion of the principal feature studied in the survey; since it is unknown, it is estimated to be 0.5.

t: the confidence factor that expresses the period of confidence.

e: the ultimate margin of error in estimating the indicator.

The number of participants from each district was proportional to the percentage of Arab citizens in that district, out of the total Arab population in Israel. Within each district, an equal representation of men and women was expected as well as an equal representation of all four age groups mentioned above.

2.3. Data Collection

A database of 12,860 names and mobile phone numbers of people who live in the four districts was purchased from a communications and advertising company. The interviews were conducted in Arabic by 3 interviewers with proven experience and closely supervised by the research coordinator. All the participants in the data collection spoke Arabic as their mother tongue. Data were collected via telephone interviews during a three-month period from the beginning of September to the end of November 2020. The interviews were conducted between 12:00 and 4:00 p.m., considered convenient hours to answer the phone by most of the subjects. It must be noted that part of the data was collected during a period of closures enforced by the authorities, which meant that interviews could be conducted during the morning hours when people stayed at home.

The duration of the interview averaged 15 min. The interviewers underwent training and participated in start-of-work simulations. During the data collection phase, a research team closely supervised the process and followed up with the interviewers after they completed the questionnaires. They also followed the interview process, particularly in the first few days of work, in order to provide procedural instructions when needed. The research coordinator reviewed personal conversations with the interviewers and provided instructions for filling out the questionnaires. Additionally, the interviewers attended a brief workshop on handling refusals, where they shared their experiences and offered tips to improve the response rate. The few questionnaires found to be incomplete were excluded from the study.

2.4. Response Rates

Participants were contacted as follows: if the candidate responded to the telephone call, the interviewer presented the study and its goals according to the informed consent document and asked for the candidate's consent to participate. If they agreed, the interview took place. If the candidate did not agree, the subject was considered a refuser. When there was no answer, the interviewer called again twice at different times. If there was again

no response, the name of the candidate was deleted from the list of participants. During the data collection process, 9361 candidates were called. Of these, 6603 did not answer the phone and 2757 answered. Once the 1535 interviews—the needed sample size—were completed, the data collection process stopped.

Among those who answered the telephone, a response rate of 56.6% was obtained. Reports on the acceptable response rates for community studies using telephone interviews claim that the goal should be to approximate a 60% response rate [50]. The 56.6% obtained is an acceptable rate for community studies carried out through telephone interviews, as it broadly represents the target population and allows for the generalization of results [51]. A publication of the Pew Research Center claims that telephone estimates generally show little bias in nonresponse or lifestyle, health, and demographic questions [52] (p. 15), and for 13 demographic, lifestyle, and health questions that were compared with benchmarks from high-response-rate federal surveys, the estimates from the phone polls were just as accurate, on average, in 2016 as they were in 2012. The average (absolute) difference between the Center telephone estimates and the benchmark survey estimates was 2.7 percentage points in 2016, compared with 2.8 points in 2012 [52]. A community study carried out face-to-face in Israel, which obtained a total response rate of 68.7%, was considered a sufficiently adequate representative sample to make policy decisions [53].

Response rates by district were as follows: in the Northern District, 59.2% of subjects agreed to participate; in the Haifa District, 54.8%; in the Central District, 44.9%; and in the Southern District, 58.8%. Response rates differed significantly among the districts, with the Central District having the lowest response rate (χ^2 = 32.881; $p \leq 0.001$). Regarding the lower response rates of subjects from the Central District, the expert geographer and urban planner Rassem Khamaisi raised several hypotheses, namely, that the geographic proximity of these localities to large Jewish cities and the fact that several mixed Jewish–Arab cities (Ramle, Lod, and Yaffa) are included in this district allowed our subjects to behave more in conformity with Jewish norms, and this implies more individualism and less commitment to issues of interest to Arab society in Israel. In addition, these mixed localities are characterized by city-life conditions rather than by those of the segregated Arab towns where traditional values are more prevalent, and this may explain why they would be less inclined to 'waste time' with an interview of no direct benefit to them (Prof. Rassem Khamaisi, personal communication).

2.5. Pilot and Training of Interviewers

The pilot study included 20 interviews, and improvements were made to the questionnaire according to the findings. The training of interviewers included explanations about the questionnaire and interview simulations, where interviewers were coached as they interviewed 10 subjects each. In accordance with the insights that emerged, additional training was conducted in order to give interviewers tools for dealing with refusals and thus increase response rates. The interviewers filled out the questionnaires verbatim while conducting the telephone interview.

2.6. Instruments and Measurements

The questionnaire included the following sections:

1. Sociodemographic information: age, gender, place of residence, educational level, occupation, marital status, religious denomination, number of children, employment status before and after the COVID-19 pandemic, and economic hardship (before and after the pandemic);
2. Ad hoc questions regarding compliance with the official recommendations of the Ministry of Health (keeping social distance, using masks, hand washing, avoiding social and family visits, avoiding unnecessary shopping);
3. Questions regarding the presence of chronic disease and having a family member infected with COVID-19;

4. An ad hoc questionnaire based on the Health Belief Model Questionnaire [40], which included 9 questions about the personal risk of being infected with COVID-19, the perception of the severity of the risk, the perceived benefit of behavioral change, and barriers to behavioral change.

Respondents were asked to report their compliance with the recommendations at the time of the interview during the COVID-19 second wave.

This study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee of Galilee Society, the National Arab Society for Health Research and Services (protocol number 1\2020; 20 May 2020).

2.7. Data Analysis

The data were entered and processed using IBM SPSS Statistics, version 28.0.1.0 software and analyzed using descriptive statistics, chi-square tests to examine associations between different variables, and logistic regression analyses. Exploratory factor analyses and content analyses of the dependent variables were carried out. All analyses were carried out separately for male and female subjects.

3. Results

3.1. Sociodemographic and Health-Related Characteristics of the Study Population

Of the subjects, 54.9% were male and 45.1% female; 8.8% of males and 4.1% of females were aged $\geq$ 65; 30% of males and 42% of females had a college education; and 18.3% of males and 13.6% of females had a chronic disease (Table 1). In order to control for the imbalance in gender distribution by geographic district (men were overrepresented in the Southern District and women in the Central District), all analyses were performed separately for men and women.

Table 1. Sociodemographic and health-related characteristics of the study population.

| Sociodemographic Variables | Gender | | | | | |
| | Male | | Female | | Total | |
	% 54.9	N 841	% 45.1	N 692	% 100	N 1533
Age						
18–24	5.7	48	5.6	39	5.7	87
25–34	14.2	119	24.9	172	19.0	291
35–44	23.9	200	37.5	259	30.0	459
45–54	34.7	291	21.7	150	28.8	441
55–64	12.6	106	6.2	43	9.7	149
$\geq$65	8.8	74	4.1	28	6.7	102
			χ^2 = 97.400; df = 5; $p \leq 0.001$			
Educational level						
Primary	5.8	48	5.0	34	5.4	82
Junior high school	16.8	139	9.1	62	13.3	201
Partial high school	23.8	197	19.4	132	21.8	329
High school diploma	23.7	196	24.5	167	24.1	363
College/university	30.0	248	42.0	286	35.4	534
			χ^2 = 35.770; df = 4; $p \leq 0.001$			
District						
Northern	53.6	451	48.3	334	51.2	785
Haifa	15.7	132	18.6	129	17.0	261
Central	8.6	72	23.3	181	15.2	233
Southern	22.1	186	9.8	68	16.6	254
			χ^2 = 92.681; df = 3; $p \leq 0.001$			
Chronic diseases						
Yes	18.3	154	13.6	94	16.2	248
No	81.7	686	86.4	596	83.8	1282
			χ^2 = 6.188; df = 1; $p = 0.013$			

3.2. Compliance with Official Recommendations by Sociodemographic Traits

Table 2 shows compliance by gender and age: compliance rates with keeping social distance, wearing a mask, and washing hands were higher among women, ranging between 86.6% and 90.3%, than among men (80.5–82.3%). Regarding avoiding social visits and avoiding unnecessary shopping, all subjects had much lower compliance rates, ranging between 47.1% and 60.4%. No gender differences were found regarding avoiding social visits and avoiding unnecessary shopping.

Table 2. Compliance with official recommendations by gender and age (%).

Compliance with Specific Recommendations	Age Group										Gender Differences
	Male					Female					
	18–34	35–44	45–54	≥55	Total	18–34	35–44	45–54	≥55	Total	
	n = 167	*n* = 200	*n* = 291	*n* = 180	*N* = 838	*n* = 211	*n* = 259	*n* = 150	*n* = 71	*N* = 691	
Keep distance											$\chi^2 = 9.977$; $p = 0.002$
Great extent	74.1	81.9	80.4	85.9	80.5	89.5	83.3	83.2	97.1	86.6	
Somewhat/not at all	25.9	18.1	19.6	14.1	19.5	10.5	16.7	16.8	2.9	13.4	
	$\chi^2 = 7.886$; df = 3; $p = 0.04$					$\chi^2 = 12.004$; df = 3; $p = 0.007$					
Wear mask											$\chi^2 = 19.757$; $p \leq 0.001$
Great extent	75.9	83.9	81.5	88.7	82.3	90.5	89.9	86.7	98.6	90.3	
Somewhat/not at all	24.1	16.1	18.5	11.3	17.7	9.5	10.1	13.3	1.4	9.7	
	$\chi^2 = 10.199$; df = 3; $p = 0.017$					$\chi^2 = 7.749$; df = 3; $p = 0.051$					
Wash hands											$\chi^2 = 17.867$; $p \leq 0.001$
Great extent	72.9	78.3	81.1	85.3	82.3	89.5	86.4	84.0	94.3	90.3	
Somewhat/not at all	27.1	21.7	18.9	14.7	17.7	10.5	13.6	16.0	5.7	9.7	
	$\chi^2 = 8.755$; df = 3; $p = 0.033$					$\chi^2 = 5.747$; df = 3; $p = 0.125$					
Avoid visits											$\chi^2 = 3.244$; $p = 0.072$
Great extent	51.2	48.7	58.1	64.4	55.7	64.4	54.9	57.1	76.5	60.4	
Somewhat/not at all	48.8	51.3	41.9	35.6	44.3	35.6	45.1	42.9	23.5	39.6	
	$\chi^2 = 11.043$; df = 3; $p = 0.011$					$\chi^2 = 12.518$; df = 3; $p = 0.006$					
Avoid shopping											$\chi^2 = 0.032$; $p = 0.858$
Great extent	50.0	37.3	46.7	58.3	47.6	46.6	43.2	43.5	71.0	47.1	
Somewhat/not at all	50.0	62.7	53.3	41.7	52.4	53.4	56.8	56.5	29.0	52.9	
	$\chi^2 = 16.657$; df = 3; $p \leq 0.001$					$\chi^2 = 18.126$; df = 3; $p \leq 0.001$					

Among men in the 55 and older age group, compliance rates were significantly higher than those in the younger age groups with each one of the recommendations: 85.9% reported keeping social distance, 88.7% wearing a mask, 85.3% washing hands, 64.4% avoiding visits, and 58.3% avoiding shopping, as compared with those in the youngest age group (18–34 years), whose compliance rates were 74.1%, 75.9%, 72.9%, 51.2%, and 50.0%, respectively. Among women, we found the same pattern, with the highest compliance rates among those in the 55 and older age group: 97.1% reported keeping social distance, 98.6% wearing a mask, 76.5% avoiding visits, and 71.0 avoiding shopping, as compared to women in the 18–34 age group, where compliance rates were 89.5%, 90.5%, 64.4%, and 46.6%, respectively.

3.3. Compliance by Educational Level

Higher compliance rates with keeping social distance ($\chi^2 = 25.512$; $p \leq 0.001$), wearing a mask ($\chi^2 = 31.132$; $p \leq 0.001$), and washing hands ($\chi^2 = 18.202$; $p \leq 0.001$) were found among males with a high school diploma and higher educational level than among males with a lower educational level. Males with a university or college education were more likely to comply with avoiding visits ($\chi^2 = 13.460$; $p = 0.004$) and unnecessary shopping ($\chi^2 = 12.763$; $p = 0.005$) (see Figure S1 in Supplementary Materials).

Among women, those with the lowest and highest educational levels were more likely to comply with keeping social distance ($\chi^2 = 133.325$; $p = 0.004$), wearing masks ($\chi^2 = 14.347$; $p = 0.002$), and washing hands ($\chi^2 = 23.352$; $p \leq 0.001$), while educational level was not significantly associated with avoiding visits ($\chi^2 = 0.578$; $p = 0.901$) or avoiding unnecessary shopping ($\chi^2 = 5.683$; $p = 0.128$) (see Figure S2 in Supplementary Materials).

3.4. Classifying the Five Directives into Two Components

Our findings showed that keeping social distance, wearing a mask, and washing hands had very similar and high rates of compliance, while avoiding social visits and avoiding unnecessary shopping had very similar but lower rates of compliance. An exploratory factor analysis (EFA) revealed that the five recommendations could be divided into two components: Component 1 included the instructions to "keep social distance" (item loading = 0.898), "use face mask" (item loading = 0.932), and "wash hands" (item loading = 0.913), while Component 2 included "avoid visiting family and friends" (item loading = 0.894) and "avoid unnecessary shopping" (item loading = 0.926). Content analysis led us to conceptualize the common factor underlying recommendations belonging to Component 1 as the need to adopt a new habit or individual behavior; thus, Component 1 was classified as 'Adopting New Behaviors'. The recommendations belonging to Component 2 were conceptualized by us as requiring the renunciation or abandonment of social conventions such as visiting family and friends and shopping, either as a client or as a provider. Component 2 was thus classified as 'Renouncing Usual Behaviors'.

3.5. Compliance with Recommendations by Health-Related Problems

Among both males and females, having a chronic disease was not associated with the compliance of adopting new behaviors or renouncing usual behaviors. However, having a family member infected with COVID-19 was associated with a higher compliance with both types of recommendations among both men ($p \leq 0.001$ and $p \leq 0.001$, respectively) and women ($p = 0.15$ and $p = 0.02$, respectively).

3.6. Compliance with Recommendations by Perceived Personal Vulnerability to COVID-19

Table 3 shows that among males, those who felt personally at risk of getting COVID-19 had higher compliance rates with recommendations related to both adopting new behaviors and renouncing usual behaviors. Among women, those who felt personally vulnerable had higher compliance rates with recommendations regarding adopting new behaviors, but feeling vulnerable was not associated with a higher compliance regarding the renunciation of usual behaviors.

Among males who had a family member infected with COVID-19, 65% felt vulnerable as compared to 43.8% among those who did not have a family member infected ($\chi^2 = 22.730$; df = 1; $p \leq 0.001$). Among females, 61.4% of those with a family member infected with COVID-19 felt vulnerable, as compared to 50.1% among those who did not have a family member infected ($\chi^2 = 5.295$; df = 1; $p = 0.021$).

As expected, compliance was strongly associated with the belief that it is beneficial to comply with each recommendation among both male and female respondents. Among men who fully agreed that the specific recommendations were helpful in preventing the virus, 92.6% kept social distance, 94.8% wore masks, 93.4% washed hands, 75.6% avoided visits, and 66.2% avoided shopping, as compared to 57.5%, 57.4%, 54.2%, 33.6%, and 27.6%, respectively, among those who disagreed. Among women who fully agreed that each specific recommendation was helpful in preventing the virus, 93.7% reported keeping social distance, 96.2% wearing masks, 94.5% washing hands, 72.3% avoiding visits, and 62.2% avoiding shopping, as compared to 64.6%, 70.3%, 64.8%, 42.3%, and 26.4%, respectively, among those who disagreed.

3.7. Multivariate Analyses

3.7.1. Recommendations Related to 'Adopting New Behaviors'

In the multivariate regression analysis for males (Table 4), subjects with a high school diploma were 2.4 times more likely than those with a primary educational level to comply with the recommendations, those living in the Northern District were 2.8 times more likely than those living in the Southern District to comply, while those living in the Haifa and Central Districts were 2.2 and 2.0 times more likely, respectively, to comply with the recommendations than those in the Southern District. Males who had a family member with COVID-19 were 2.3 times more likely to comply than those who did not have a family member with COVID-19, and those who perceived they were personally susceptible to getting the disease were 3.0 times more likely to comply with the recommendations than those who saw themselves as not susceptible to the disease. Age was not significantly associated with the compliance with the recommendations in males.

Table 3. Compliance with recommended behaviors by the perceived personal vulnerability to COVID-19 and gender (%).

Compliance with Recommended Behaviors	Perceived Personal Vulnerability to COVID-19					
	Gender					
	Male			Female		
	%			%		
Type of recommendation	Vulnerable ($n = 292$) 100%	Not vulnerable ($n = 516$) 100%	Total ($N = 808$) 100%	Vulnerable ($n = 281$) 100%	Not vulnerable ($n = 393$) 100%	Total ($N = 674$) 100%
Type 1: Adopting New Behaviors						
To a great extent	91.8	73.3	($n = 646$)	94.0	82.7	($n = 589$)
Somewhat/Not at all	8.2	26.7	($n = 162$)	6.0	17.3	($n = 85$)
	$\chi^2 = 39.922$; df = 1; $p \leq 0.001$			$\chi^2 = 18.826$; df = 1; $p \leq 0.001$		
Type 2: Renouncing Usual Behaviors						
To a great extent	59.6	48.3	($n = 424$)	59.1	56.7	($n = 389$)
Somewhat/Not at all	40.4	51.7	($n = 384$)	40.9	43.3	($n = 285$)
	$\chi^2 = 9.428$; df = 1; $p = 0.002$			$\chi^2 = 0.365$; df = 1; $p = 0.546$		

Among females, the multivariate analysis showed that although of borderline significance ($p = 0.059$), those with a secondary educational level were half as likely than those with only a primary educational level to comply, those living in the Northern District were 2.3 times more likely than those in the Southern District to comply, those who had a family member infected with COVID-19 were 2.2 times more likely to comply, and women who perceived themselves as susceptible to getting COVID-19 were 2.4 times more likely to comply than those who did not feel they were susceptible. When included with the other variables in the multivariate analysis, women's age was not significantly associated with the compliance with recommendations to adopt new behaviors.

3.7.2. Recommendations Related to 'Renouncing Usual Behaviors'

Table 5 demonstrates that among males, those with a university or college education were 1.8 times more likely than those with a primary education to comply with the recommendations; those aged 34–44 years were half as likely to comply than those in the youngest age group. Men living in the Haifa District were 1.6 times more likely to comply than those living in the Southern District. Males with a family member with COVID-19 were 1.8 times more likely to comply than those without a sick family member, and those who perceived they were personally susceptible to getting the disease were 1.7 times more likely to comply than those who did not feel vulnerable.

For females, those in the 35–44 years age group were less likely to comply than those in the youngest age group and those with a family member with COVID-19, and though of borderline significance, were 1.5 times more likely to comply than those without an infected family member. Educational level, geographic district, and perceived susceptibility to getting infected were not significantly associated with the compliance to renounce usual behaviors when included in the multivariate analysis with other variables.

Table 4. Likelihood of compliance with recommendations in 'Adopting New Behaviors' according to selected demographic and health-related variables and the perceived susceptibility to infection from COVID-19 (OR and 95% CI).

Variables	Male			Female		
	OR	(95% CI)	*p*	OR	(95% CI)	*p*
Educational level						
Primary		[reference]			[reference]	
Secondary	0.76	(0.4–1.3)	0.299	0.47	(0.2–1.0)	0.059
High school diploma	2.37	(1.3–4.5)	0.008	1.11	(0.5–2.7)	0.809
University/college	1.19	(0.7–2.0)	0.518	1.15	(0.5–2.6)	0.730
Age						
18–34		[reference]			[reference]	
35–44	1.03	(0.6–1.8)	0.924	0.67	(0.4–1.2)	0.197
45–54	1.04	(0.6–1.7)	0.883	0.75	(0.4–1.5)	0.423
≥55	1.63	(0.9–3.1)	0.134	1.29	(0.4–3.9)	0.655
Geographic District						
Northern	2.80	(1.8–4.4)	≤0.001	2.33	(1.1–5.0)	0.030
Haifa	2.20	(1.2–4.0)	0.010	2.15	(0.9–5.4)	0.102
Central	1.98	(1.0–4.1)	0.060	1.13	(0.5–2.5)	0.710
Southern		[reference]			[reference]	
COVID-19 in family						
Yes	2.29	(1.2–4.2)	0.008	2.16	(1.0–4.7)	0.054
No		[reference]			[reference]	
Perceived susceptibility						
Yes	3.03	(2.0–4.6)	≤0.001	2.37	(1.4–3.9)	≤0.001
No		[reference]			[reference]	
Nagelkerke scores		0.187			0.121	

The Nagelkerke scores for 'Adopting New Behaviors' were 0.187 for males and 0.121 for females, while for 'Renouncing Usual Behaviors', they were 0.105 for males and 0.042 for females. The relatively low variation in the dependent variables that was explained by the independent variables in our model was not affected by the addition of another sociodemographic variable (age) or another health-related variable (presence of a chronic disease) to the logistic regression model.

Table 5. Likelihood of compliance with recommendations in 'Renouncing Usual Behaviors' according to selected demographic and health-related variables and the perceived susceptibility to infection from COVID-19 (OR and 95% CI).

Variables	Males			Females		
	OR	(95% CI)	*p*	OR	(95% CI)	*p*
Educational level						
Primary		[reference]			[reference]	
Secondary	1.07	(0.7–1.7)	0.755	1.47	(0.8–2.6)	0.188
High school diploma	1.02	(0.7–1.6)	0.919	1.16	(0.7–2.0)	0.614
University/college	1.84	(1.2–2.8)	0.004	1.48	(0.9–2.5)	0.147
Age						
18–34		[reference]			[reference]	
35–44	0.57	(0.4–0.9)	0.014	0.64	(0.4–0.9)	0.024
45–54	0.84	0.6–1.3	0.416	0.74	(0.5–1.1)	0.180
$\geq$55	1.44	0.9–2.3	0.146	1.91	(0.9–3.5)	0.067
Geographic District						
Northern	1.38	(0.9–2.0)	0.097	1.18	(0.7–2.1)	0.566
Haifa	1.64	(1.0–2.7)	0.049	1.00	(0.5–1.9)	0.991
Central	0.99	(0.5–1.8)	0.964	1.06	(0.6–2.0)	0.845
Southern		[reference]			[reference]	
COVID-19 in family						
Yes	1.79	(1.2–2.6)	0.004	1.52	(1.0–2.3)	0.053
No		[reference]			[reference]	
Perceived susceptibility						
Yes	1.65	(1.2–2.2)	0.001	0.94	(0.7–1.3)	0.765
No		[reference]			[reference]	
Nagelkerke scores		0.105			0.042	

4. Discussion

This study set out to assess the association between compliance with COVID-19 containment measures and the characteristics of the population, characteristics of the disease as perceived by the population, and characteristics of the recommendations and behavioral changes required. The associations between compliance and the sociodemographic characteristics of the population, as well as between compliance and the perceived severity of the disease have been extensively studied [41–45]. The focus of our discussion, therefore, will be on the characteristics of the recommendations themselves and their potential conflict with the values and norms of the study population, particularly in regard to gender roles. Our main finding was the strikingly different response patterns observed regarding compliance with the different recommendations studied. Content analysis of the actions and behaviors required to comply with each recommendation and an exploratory factor analysis revealed two distinct and consistent factors. The first factor included recommendations to keep social distance, wear a face mask, and wash hands, with very similar and high compliance rates. The second factor included the recommendations to avoid social and family gatherings and avoid unnecessary shopping, with much lower compliance rates. By analyzing the contents and implications of the particular behavioral changes demanded by each recommendation, we identified and conceptualized two distinct clusters that give a social- and cultural-specific meaning to the compliance rates. The first cluster includes

recommendations that require adopting new behaviors, and the second includes recommendations that require renouncing usual behaviors that have been traditionally based on particular values and social norms. These two sets help us understand the compliance behaviors of Arab society in Israel, in the context of "gendered social values [that] continue to shape family life" [23] (p. 2).

Compliance rates for the adoption of new behaviors were much higher than for the renunciation of usual behaviors. Some possible reasons for this are that the former carries a relatively low social and personal cost, presents little affront to societal values and norms, and is associated with a good understanding of the health benefits of implementing the behaviors, as can be seen by the association with a higher educational level [31]. The renunciation of usual behaviors, on the other hand, may present a conflict with existing values related to caring for family members, particularly for women. Goren and others claim that among both the ultra-Orthodox and Arabs in Israel, "the demand to maintain social distancing from a family member who needs help is almost impossible to observe . . . and thus this demand conflicts with their normal way of life and their ability to comply with the mandates" [49] (p. 3). Another explanation for the lower compliance of renouncing usual behaviors is that traditional values that prescribe that women should take care of the elderly and the sick in the family are very prevalent, especially among those living in segregated Arab villages and towns and among lower-educated families [29]. Although higher-educated women are increasingly working outside the home and sharing caregiving obligations with paid help or willing partners, this is still not the general norm [29]. A study among Arabs in Israel found that although higher-educated men whose spouse has a similar educational level shared childcare, this was not the case when the children were babies or toddlers, who require more intensive care, and this might also partly explain the reticence of men to care for the elderly, who are in need of much physical care [23]. In this study, nearly 43% of women did not comply with the mandate to avoid family visits and gatherings, a fact corroborated by Bord and others, who found that among elderly Arabs in Israel, "more than a third reported allowing family members' visitations" [54] (p. 7). They attributed this to their finding that attitudes and perceived social norms were fundamental in predicting distance adherence.

Therefore, unlike most studies in developed countries that find a higher compliance among women to COVID-19 mandates than among men [30], we did not find gender differences regarding compliance with recommendations that require the renouncing of usual behaviors that are paramount in this society. By establishing the distinction between the two sets of recommendations and embedding our explanation in the social norms of this particular population, we may better understand the lower compliance of women, even those with a higher educational level, to the avoidance of visits to family and unnecessary shopping. This may provide a plausible explanation for the discrepancy between our results and the results of most studies carried out in Western countries, in which women have higher 'total compliance rates' [55,56]. Paramita's [34] perspective that compliance in populations such as the present is better explained by the 'traditional vs. egalitarian' gender roles than by the 'male–female' dichotomy is very useful in clarifying our findings.

Another example of the potential conflict between recommendations that require renouncing usual behaviors is the widespread participation in wedding celebrations, which are of great importance for both men and women in traditional close-knit communities. During the second wave of COVID-19, the Israeli media were full of reports of large weddings in Arab towns [7,8] in defiance of the official recommendations. Nearly 90% of Arabs in Israel live in segregated towns and communities [22], and this increases the need for solidarity and interdependence. A wedding is one of the venues where community members can display reciprocity by presenting gifts that are equivalent to the ones their own family members received at their weddings. In their attempt to reduce contagion, the Israeli authorities limited the number of participants in wedding halls, and this did not allow for extended family and close community members to celebrate together, in direct opposition to the established norm among Arabs in Israel. This led to changing the location

of the celebrations, which were moved to smaller private homes where women sat inside and were more exposed to possible contagion while men celebrated outside.

The persistence of social gatherings in the midst of the COVID-19 epidemic can be understood in the context of the particular social functions that benefit group cohesion as an important source of social support as well as of normative control. According to Blau [24], in cohesive groups and particularly in a discriminated and oppressed community, "social control strengthens the group as a whole, [while] social support strengthens its members individually, particularly in relation to outsiders" (p. 61). There is the shared value of the exchange of gifts and courtesies and the participation in celebrations of weddings and other family festivities of those who have participated in one's own celebrations. The concept of exchange implies that an individual who supplies rewarding services to another obligates him, and in order to discharge this obligation, the second must respond in kind to the first. The need for reciprocity works as an incentive for social interaction. The benefits involved in social exchange do not have an exact price, and "the specific benefits exchanged are sometimes primarily valued as symbols of the supportiveness and friendliness they express, and it is the exchange of the underlying mutual support that is the main concern of the participants" [24] (p. 95).

High compliance with certain recommendations and low compliance with others highlights the disadvantage of using a composite 'compliance score' which may obscure the actual compliance patterns of different populations. If compliance is analyzed as an overall composite score based on the sociodemographic characteristics of the individual [33], the logical conclusion is that "the strategy to increase compliance should focus on increasing motivation to comply in general, for instance through campaigns advertising the risk of non-compliance for personal, family and public health" [33] (pp. 250–251). Our findings indicate that compliance among Arabs in Israel becomes more intelligible and coherent when the recommendations are categorized into the two distinct constructs. This serves to realign the recommendations according to the meaning of the behavioral changes vis-à-vis their potential conflict with the norms and values of particular population groups and allows both for a better understanding of reasons for resistance to change and for planning more nuanced strategies and policy decisions that take into consideration the long-standing norms and values of the population.

While different interpretations of the two categories identified by the factor analysis are certainly possible, our interpretation was based on the available literature on the subject and on our personal and professional acquaintance with the population. We believe that our findings may shed light on the issue of low compliance with certain recommendations among Palestinian citizens of Israel, particularly women.

4.1. Adopting New Behaviors

With regard to sociodemographic and health-related factors, the likelihood of compliance with recommendations to adopt new behaviors among males was higher if they had a high school diploma than if they had a primary educational level. Educational level is usually associated with a better understanding of the benefits of complying, and information campaigns are generally based on the premise that information will convince people to adopt the recommendations of experts. Indeed, most studies find a positive association between compliance and educational level [31]. In the Arab minority in Israel, where 57% of schools in the general Arab sector and 93% in the Bedouin sector are in the weakest quintile with respect to the School Nurture Index, which tests the quality of schools in many respects [57], obtaining a high school diploma is a significant achievement that sets students apart from the more problematic group of those who drop out during high school. Among Arab males in Israel, among whom low educational levels and social marginalization are a general occurrence [17], a high school diploma is a sign of perseverance and empowerment. Thus, the association found among males between higher education and compliance with the recommendation to adopt new behaviors is a very plausible finding in our population. Regarding women, however, we found that although of borderline

significance (p = 0.059), those with a secondary school education were half as likely as those with a primary education to comply with the recommendations. It is highly likely that these women were mainly employed in essential jobs [14] and therefore had difficulty complying with social distancing, wearing masks, and hand hygiene.

An increasing age has been found to be associated with an increasing compliance with health-related recommendations [37], but this was not the case in our study population regarding the recommendations related to adopting new behaviors, neither for men nor for women.

The geographical district in which subjects live may be used as proxy measure for the socioeconomic level of their community, and substantial differences exist among districts, with the Southern District, which includes mostly Bedouin citizens, ranked at the lowest socioeconomic level [21]. Our findings would indicate that a higher socioeconomic level was associated with a higher compliance in adopting new behaviors. We found, among men, that those living in the Northern, Haifa, and Central Districts were more likely than those in the Southern District to comply with recommendations to adopt new behaviors, while women in the Northern District were more likely to comply than those in the Southern District.

Our study corroborated the findings of others who report higher compliance rates among those who have a family member who was infected with COVID-19 [38,39]. We found that both men and women with a family member infected with COVID-19 were more likely to comply with recommendations to adopt new behaviors.

4.2. Renouncing Usual Behaviors

With regard to educational level, the highest compliance rates in males were found among those with a university education, in agreement with the findings of others [31]. Among women, however, a higher educational level was not associated with higher compliance rates. A possible explanation for this is that the changes demand abandoning traditional family obligations toward the elderly and sick in their extended family and are of a high personal cost to women, who must renounce long-cherished norms that have been operating and contributing to solidarity and social support. Our findings seem to indicate that, in this population, the caring role of women takes precedence regardless of educational level. Although more women of the younger generations believe in the need for equal participation in housework, "attitudes do not always pave the way for behavior; it is possible for one to hold less traditional beliefs but not to act according to them, especially when there are barriers to behaving in a particular manner" [25] (p. 29).

We found that both men and women aged 35–44 years were less likely than those aged 18–34 years to comply with recommendations to renounce usual behaviors. This may be explained by the fact that this age group includes men who have young families to support and must go out to work, mainly in the essential worker sectors, while women in this age group are the ones that take care of other family members, and the minority who work outside the home are mainly employed in the educational and health services [22], which require their presence in social settings. Lower education, lower socioeconomic status, and less skills are overrepresented among essential workers in the public services, which do not allow for proper social distancing; during the COVID-19 pandemic, they had to choose between taking care of their health and earning their living. A major concern affecting compliance among Arabs in Israel was the loss of income; "when compensation was assumed, the compliance rate was 94% . . . when removed . . . it dropped to less than 57%" [36] (p. 936). Regarding the geographic district, men living in the Haifa District were more likely than those in the poorer Southern District to comply. Among women, this proxy socioeconomic measure was not associated with increased or decreased compliance. Similar to the findings regarding education, it would seem that in our population, regardless of geographic location, the caring role of women takes precedence over the effect of a higher socioeconomic level.

Among subjects with a family member with COVID-19, males were more likely to comply with recommendations to renounce usual behaviors than males who did not have a sick family member; women, although of borderline significance ($p = 0.054$), were also more likely to comply than those who did not have a sick family member. The immediate risk of getting infected or infecting others seems to be a cogent factor with regard to the compliance with recommendations of both kinds.

In our study, we used two subjective dimensions of the Health Belief Model [40] to explain people's compliance with health-related recommendations, i.e., the perceived susceptibility of an individual to infection with COVID-19 and the benefit of complying. Many studies have found perceived susceptibility to be a potent factor associated with the compliance with COVID-19 mandates [41,43]. In our study, the association between the perception of risk and high compliance showed a complex pattern. Among males, those who felt personally at risk were more likely to comply with adopting new behaviors and more likely to comply with renouncing usual behaviors than those who did not feel personally vulnerable. Among women, however, those who believed they were personally vulnerable were more likely to comply with the behavior-adoption recommendations, but we found no association between feeling personally at risk and renouncing usual behaviors. This again points to the overwhelming strength of social norms that indicate that the acknowledged role of women vis-à-vis the care of the sick and elderly is still a persistent norm among Arab women in Israel.

In this study, we attempted to understand the lack of compliance with avoiding social gatherings in Arab society in Israel, which was a prominent item in the media during the second COVID-19 wave. The many studies that report that women's gendered-caring duties have a paramount role in this society support our findings regarding the lack of association between the educational level of women and their compliance with the official recommendations. It seems that having a family member with COVID-19, although of borderline significance, somewhat increases the likelihood of complying, and being in the 35–44 years age group decreases the likelihood of compliance, but neither educational level nor perceived susceptibility were associated with compliance in renouncing usual norms.

In general, the low scores in the Nagelkerke values further emphasize that the sociodemographic and health-related independent variables that usually explain the variation in compliance among Western populations and were included in our regression models do not explain much of the variation regarding the compliance with recommendations in this minority group. Rather, more subtle and sensitive measures of cultural and social norms that represent the particular population need to be identified in order to have a better appreciation of which strategies need to be employed in each case.

5. Limitations

This study has a number of limitations that suggest directions for additional research. First, the gender distribution differed by geographic district, as men were overrepresented in the Southern District, and women were overrepresented in the Central District. In order to address this imbalance, we conducted separate analyses for men and women, which allowed for a better understanding of their behaviors. Since this precludes the inclusion of gender as a parameter in the multivariate models, one possible solution in future studies could be to direct more resources in order to obtain a more gender-balanced sample, for instance, the allocation of more time and more personnel to the task of locating eligible participants in the various districts, which our study showed to have an imbalance of either men or women participants, and/or a study design based on face-to-face interviews instead of telephone interviews. A related limitation of our study was the paucity of Bedouin women respondents in the Southern District. It would be helpful in future studies to aim for a larger sample of these women. Although we do not have grounds to believe they behave differently from other Arab women in Israel regarding compliance, we suggest that future studies pay particular attention to this subgroup's cultural and gendered norms in the context of a pandemic.

6. Conclusions and Recommendations

In the context of pandemics such as COVID-19, it is important to understand the reasons behind noncompliance in different population groups in order to design culturally appropriate strategies which correspond to their values and norms. In this study, we have analyzed the distinct actions and behavioral changes required by each recommendation, in addition to the sociodemographic and health-related characteristics of the population. This has offered a choice between combining them into an overall composite compliance index where the emphasis is placed on the characteristics of the individuals or placing the emphasis on the characteristics of the recommendations. The choice has important implications insofar as the strategies that the authorities need to adopt in order to increase compliance.

The cultural adaptation of informative campaigns is essential for targeting various population groups, as this study has shown regarding the Palestinian citizens of Israel. This involves sharing and partnering with individuals and social organizations within this society. In their study of different population groups in Israel, Goren, Vashdi and Beeri [49] suggest that policymakers take into account that "minority groups vary in their intentions to comply with government health instructions" (p. 1) and that group-specific information regarding the risk and effectiveness of the instructions should be available. The noncompliance of a traditionally structured community, whose interdependence and norms for the maintenance of binding relations that benefit all members are in conflict with official recommendations, has very different roots from the noncompliance of those who champion individualism and personal freedoms that are rooted in neoliberal ideology. Flynn [58] claims that the impact of neoliberalism in health policies, where there is a "preference for individual responsibility over collectivism, has eroded solidarity" (p. 1), particularly in the case of public health measures to contain COVID-19. Among traditional minority populations, the sense of solidarity is expressed in a different realm, and therefore there is a conflict between the values of caring for the weak and elderly and participating in traditional family and community events and obeying an authority's call for limiting social gatherings. For those following a neoliberal ideology, the defense of their individual rights to do as they wish, without governmental interference, is paramount, even when it puts others in danger. In both cases, there is noncompliance, but it derives from distinct sources and demands different treatment from public health authorities.

The analysis of our findings led us to categorize recommendations as those that require the adoption of new behaviors and those that require renouncing usual behaviors. It is important that attention be paid to the sociological content and cultural implications of specific official recommendations declared by the authorities when compliance is studied, particularly in the context of a future pandemic. We suggest that future studies use the method presented here but not necessarily adopt our specific categories, which are useful regarding the recommendations studied among the Palestinian citizens of Israel at present but need to be verified regarding other recommendations and in other population groups. We do not believe that these categories are necessarily applicable universally, and therefore recommend that researchers in other societies find the categories that are best suited to the characteristics, norms, and values of the population groups under study in times of epidemics.

Author Contributions: Conceptualization, M.K. and I.M.-K.; Methodology, M.K. and I.M.-K.; Software, M.Y. and A.S.M.; Validation, M.K. and A.S.M.; Formal analysis, M.K. and I.M.-K.; Investigation, A.S.M.; Data curation, D.Z.; Writing—original draft, M.K. and I.M.-K.; Writing—review & editing, A.I.; Project administration, D.Z.; Funding acquisition, M.K. All authors have read and agreed to the published version of the manuscript.

References

1. COVID-19 in Israel, General Status, Jerusalem [Internet]. 2020. Available online: https://datadashboard.health.gov.il/COVID19/?utm_source=go.gov.il&utm_medium=referral (accessed on 20 May 2023).
2. Adalah's Annual Report, 2020, Issued June 2021, the Legal Center for Arab Minority Rights in Israel. Available online: http://www.adalah.org (accessed on 20 May 2023).
3. Inter-Agency Task Force on Israeli Arab Issues. *COVID-19 in Israel's Arab Communities: Health Risks and Economic Concerns*; Inter-Agency Task Force on Israeli Arab Issues: Jerusalem, Israel, 2020.
4. Ben-David, D.; Kimhi, E. *Anarchy at the Helm with COVID-19 on Deck: Israel's Lethal and Horizon-Less Mix at the Half Year Mark*; Shoresh Institute: Jerusalem, Israel, 2020; p. 222.
5. COVID-19 National Preparedness Collaborators. Pandemic preparedness and COVID-19: An exploratory analysis of infection and fatality rates, and contextual factors associated with preparedness in 177 countries, from Jan 1, 2020, to Sept 30, 2021. *Lancet* **2022**, *399*, 1489–1512. [CrossRef] [PubMed]
6. Haj-Yahya, D. Subjects who Disobey the Vaccination Mandate in the Arab Society Speak About a Lack of Trust in the System. *Haaretz*, 11 August 2021.
7. Khouri, J. In the Arab localities they are celebrating big weddings again and contagion is increasing. *Haaretz*, 19 July 2020.
8. Linder, R. We follow-up our cases and know who got sick in a wedding and who in a restaurant. *Haaretz*, 12 October 2020. (In Hebrew)
9. Howard, J.; Huang, A.; Li, Z.; Tufekci, Z.; Zdimal, V.; van der Westhuizen, H.-M.; von Delft, A.; Price, A.; Fridman, L.; Tang, L.-H.; et al. An evidence review of face masks against COVID-19. *Proc. Natl. Acad. Sci. USA* **2021**, *118*, e2014564118. [CrossRef]
10. Waitzberg, R.; Davidovitch, N.; Leibner, G.; Penn, N.; Brammli-Greenberg, S. Israel's response to the COVID-19 pandemic: Tailoring measures for vulnerable cultural minority populations. *Int. J. Equity Health* **2020**, *19*, 71. [CrossRef] [PubMed]
11. Central Bureau of Statistics. *Statistical Abstract of Israel*; Central Bureau of Statistics: Jerusalem, Israel, 2022; p. 73.
12. Hadad Haj-Yahya, N.; Saif, I.; Fargeon, B. Arab Society and the Coronavirus Crisis: Entry Data Effects, and Recommendations for a Stronger Recovery. The Israel Institute for Democracy: Jerusalem, Israel, 2020. (In Hebrew)
13. Endbal, M.; Karadi, L.; Pines, R.; Kasir, N. *Poverty and Social Gaps: Annual Report: Annex Table 2 (Hebrew)*; National Insurance Institute-NII: Jerusalem, Israel, 2022.
14. Sheikh Muhammad, A.; Abu-Mukh-Zoabi, L.; Shehadeh, M.; Miaari, S.; Moadi, F.; Fahoum, L. *The Reality of Arab Women in Israel, (Arabic)*; The Galilee Society: Shefa-Amer, Israel, 2012.
15. Khatib, M.; Mansbach-Kleinfeld, I.; Abu-Kaf, S.; Ifrah, A.; Sheikh-Muhammad, A. Correlates of psychological distress and self-rated health among Palestinian citizens of Israel: Findings from the Health and Environment Survey (HESPI). *Isr. J. Health Policy Res.* **2021**, *10*, 3. [CrossRef] [PubMed]
16. Khatib, M.; Sheikh Muhammad, A.; Omar, F.; Rezek-Marjieh, S.; Tanous, O. Perceptions of violence and mistrust in authorities among Palestinians in Israel, an unrecognized public health crisis: A cross-sectional study. *Lancet* **2022**, *399*, S37. [CrossRef]
17. Miaari, S.; Hadad Haj-Yahya, N. *NEET among Young Arabs in Israel, (Hebrew)*; The Israel Democracy Center Institutions: Jerusalem, Israel, 2017.
18. Haj-Yahia, R. This is how young Arabs are recruited for the crime. *Haaretz*, 31 December 2021.
19. State Comptroller and Ombudsman. Report of the State Comptroller; Jerusalem, Israel, 2022. 2022-A-002. Available online: https://www.mevaker.gov.il/sites/DigitalLibrary/Documents/2022/2022.5/2022.5-Taktzirim-EN.pdf (accessed on 13 December 2022).
20. Central Bureau of Statistics: Characterization and Classification of Geographical Units by the Socio Economic Level of the Population 2019. Available online: https://www.cbs.gov.il/he/mediarelease/DocLib/2022/375/24_22_375b.pdf (accessed on 23 November 2022).
21. Haddad-Haj Yahya, N.; Khalaily, M.; Rodnitsky, A. *The Inaugural Annual Statistical Report on Arab Society in Israel (English Executive Summary)*; Israel Democracy Institute: Jerusalem, Israel, 2022.

22. Sheikh Muhammad, A.; Khatib, M.; Rezek-Marjieh, S. *The Palestinians in Israel*; 5th Socio-Economic Survey; The Galilee Society, Rikaz Data Bank: Shefaram, Israel, 2017.

23. Sabbah-Karkabi, M. The diverging gender inequality across households: The case of Palestinian-Arab families in Israel. *Curr. Sociol.* **2022**, 1–22. [CrossRef]

24. Blau, P.M. *Exchange and Power in Social Life*; Routledge: London, UK, 2017.

25. Haj-Yahia, N.; Lavee, Y. Division of labor and decision-making in Arab families in Israel: Processes of change and preservation. *Marriage Fam. Rev.* **2018**, *54*, 15–33. [CrossRef]

26. Abu-Kaf, S.; Nakash, O.; Hayat, T.; Cohen, M. Social Support and Psychological Distress among the Bedouin Arab Elderly in Israel: The Moderating Role of Gender. *Int. J. Environ. Res. Public Health* **2022**, *19*, 4358. [CrossRef]

27. Ayalon, L. Family relations and elder care among Arabs in the North of Israel. *Res. Aging* **2018**, *40*, 839–858. [CrossRef]

28. Grigoryeva, A. Own gender, sibling's gender, parent's gender: The division of elderly parent care among adult children. *Am. Sociol. Rev.* **2017**, *82*, 116–146. [CrossRef]

29. Vitman-Schorr, A.; Ayalon, L. The changing status of Israeli Arab women as reflected in their role as main caregivers. *J. Fam. Issues* **2020**, *41*, 2203–2222. [CrossRef]

30. Galasso, V.; Pons, V.; Profeta, P.; Becher, M.; Brouard, S.; Foucault, M. Gender differences in COVID-19 attitudes and behavior: Panel evidence from eight countries. *Proc. Natl. Acad. Sci. USA* **2020**, *117*, 27285–27291. [CrossRef] [PubMed]

31. Rattay, P.; Michalski, N.; Domanska, O.M.; Kaltwasser, A.; De Bock, F.; Wieler, L.H.; Jordan, S. Differences in risk perception, knowledge and protective behaviour regarding COVID-19 by education level among women and men in Germany. Results from the COVID-19 Snapshot Monitoring (COSMO) study. *PLoS ONE* **2021**, *16*, e0251694. [CrossRef] [PubMed]

32. Levkovich, I.; Shinan-Altman, S. The impact of gender on emotional reactions, perceived susceptibility and perceived knowledge about COVID-19 among the Israeli public. *Int. Health* **2021**, *13*, 555–561. [CrossRef]

33. Ali-Saleh, O.; Obeid, S. Compliance with COVID-19 Preventive Guidelines Among Minority Communities: The Case of Israeli Arabs. *J. Racial Ethn. Health Disparities* **2022**, *10*, 1576–1587. [CrossRef] [PubMed]

34. Paramita, W.; Rostiani, R.; Winahjoe, S.; Wibowo, A.; Virgosita, R.; Audita, H. Explaining the voluntary compliance to COVID-19 measures: An extrapolation on the gender perspective. *Glob. J. Flex. Syst. Manag.* **2021**, *22*, 1–18. [CrossRef]

35. Ayobami, A.; Abidemi, F. A gender perspective to drug therapy non-compliance among diabetic patients. *Int. J. Soc. Sci. Humanit. Rev.* **2018**, *8*, 49–56.

36. Bodas, M.; Peleg, K. Self-isolation compliance in the COVID-19 era influenced by compensation: Findings from a recent survey in Israel. *Health Aff.* **2020**, *39*, 936. [CrossRef]

37. Wright, L.; Steptoe, A.; Fancourt, D. Patterns of compliance with COVID-19 preventive behaviours: A latent class analysis of 20 000 UK adults. *J. Epidemiol. Community Health* **2022**, *76*, 247–253. [CrossRef]

38. Georgieva, I.; Lantta, T.; Lickiewicz, J.; Pekara, J.; Wikman, S.; Loseviča, M.; Raveesh, B.N.; Mihai, A.; Lepping, P. Perceived effectiveness, restrictiveness, and compliance with containment measures against the COVID-19 pandemic: An international comparative study in 11 countries. *Int. J. Environ. Res. Public Health* **2021**, *18*, 3806. [CrossRef]

39. Kim, S.; Kim, S. Analysis of the impact of health beliefs and resource factors on preventive behaviors against the COVID-19 pandemic. *Int. J. Environ. Res. Public Health* **2020**, *17*, 8666. [CrossRef] [PubMed]

40. Rosenstock, I.M. The health belief model and preventive health behavior. *Health Educ. Monogr.* **1974**, *2*, 354–386. [CrossRef]

41. Dryhurst, S.; Schneider, C.R.; Kerr, J.; Freeman, A.L.J.; Recchia, G.; van der Bles, A.M.; Spiegelhalter, D.; van der Linden, S. Risk perceptions of COVID-19 around the world. *J. Risk Res.* **2020**, *23*, 994–1006. [CrossRef]

42. Harper, C.A.; Satchell, L.P.; Fido, D.; Latzman, R.D. Functional fear predicts public health compliance in the COVID-19 pandemic. *Int. J. Ment. Health Addict.* **2021**, *19*, 1875–1888. [CrossRef]

43. Wise, T.; Zbozinek, T.D.; Michelini, G.; Hagan, C.C.; Mobbs, D. Changes in risk perception and self-reported protective behaviour during the first week of the COVID-19 pandemic in the United States. *R. Soc. Open Sci.* **2020**, *7*, 200742. [CrossRef]

44. Fullerton, M.K.; Rabb, N.; Mamidipaka, S.; Ungar, L.; Sloman, S.A. Evidence against risk as a motivating driver of COVID-19 preventive behaviors in the United States. *J. Health Psychol.* **2022**, *27*, 2129–2146. [CrossRef]

45. González-Castro, J.L.; Ubillos-Landa, S.; Puente-Martínez, A.; Gracia-Leiva, M. Perceived vulnerability and severity predict adherence to COVID-19 protection measures: The mediating role of instrumental coping. *Front. Psychol.* **2021**, *12*, 2638. [CrossRef]

46. Coroiu, A.; Moran, C.; Campbell, T.; Geller, A.C. Barriers and facilitators of adherence to social distancing recommendations during COVID-19 among a large international sample of adults. *PLoS ONE* **2020**, *15*, e0239795. [CrossRef]

47. Shinan-Altman, S.; Levkovich, I. COVID-19 precautionary behavior: The Israeli case in the initial stage of the outbreak. *BMC Public Health* **2020**, *20*, 1–7. [CrossRef]

48. Clark, C.; Davila, A.; Regis, M.; Kraus, S. Predictors of COVID-19 voluntary compliance behaviors: An international investigation. *Glob. Transit.* **2020**, *2*, 76–82. [CrossRef]

49. Goren, T.; Vashdi, D.R.; Beeri, I. "Apples and Oranges": Examining social groups' compliance with government health instructions during the COVID-19 pandemis. *Int. J. Health Policy Manag.* **2021**, *11*, 1172–1186. [CrossRef] [PubMed]

50. O'Toole, J.; Sinclair, M.; Leder, K. Maximising response rates in household telephone surveys. *BMC Med. Res. Methodol.* **2008**, *8*, 1–5. [CrossRef] [PubMed]

51. Lallukka, T.; Pietiläinen, O.; Jäppinen, S.; Laaksonen, M.; Lahti, J.; Rahkonen, O. Factors associated with health survey response among young employees: A register-based study using online, mailed and telephone interview data collection methods. *BMC Public Health* **2020**, *20*, 1–13. [CrossRef] [PubMed]

52. Keeter, S.; Hatley, N.; Kennedy, C.; Lau, A. What low response rates mean for telephone surveys. *Pew Res. Cent.* **2017**, *15*, 1–39.

53. Mansbach-Kleinfeld, I.; Levinson, D.; Farbstein, I.; Apter, A.; Levav, I.; Kanaaneh, R.; Stein, N.; Erhard, R.; Palti, H.; Khwaled, R.; et al. The Israel Survey of Mental Health among Adolescents: Aims and Methods. *Isr. J. Psychiatry Relat. Sci.* **2010**, *47*, 4.

54. Bord, S.; Schor, A.; Satran, C.; Ali Saleh, O.; Inchi, L.; Halperin, D. Distancing adherence and negative emotions among the Israeli elderly population during the COVID-19 pandemic. *Int. J. Environ. Res. Public Health* **2021**, *18*, 8770. [CrossRef]

55. Wenham, C.; Smith, J.; Morgan, R. COVID-19: The gender impacts of the outbreak. *Lancet* **2020**, *395*, 846–848. [CrossRef]

56. Bronfman, N.; Repetto, P.; Cordon, P.; Castañeda, J.; Cisternas, P. Gender differences on psychosocial factors affecting COVID-19 preventive behaviors. *Sustainability* **2021**, *13*, 6148. [CrossRef]

57. Blass, N.; Bleikh, H. *Expenditure per Class and per Student in the Primary School Education System*; Contract No.: 03.2020; Taub Center for Social Policy Studies in Israel: Jerusalem, Israel, 2020.

58. Flynn, A.V. Solidarity and collectivism in the context of COVID-19. *Nurs. Ethics* **2022**, *29*, 1199–1208. [CrossRef]