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RESEARCH ARTICLE

Exploring the gendered mental health experiences of adolescents in Gaza during the Covid-19 pandemic

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Adolescent mental health is increasingly recognized as a critical concern. Globally, suicide is among the top 5 causes of death for 15–19-year-olds (girls and boys). In the Middle East and North Africa, the prevalence of mental disorders (17.3% for girls and 16.8% for boys) is the second highest in the world. The Covid-19 pandemic has exacerbated adolescents' vulnerabilities, particularly through the impacts of lockdowns and school closures. This article explores adolescent experiences in Gaza, drawing on mixed-methods research carried out in late 2020 in refugee camps (29%) and urban settings (71%). The sample involved phone surveys with 505 adolescent girls and boys (12–19 years) and their caregivers, in-depth interviews with a subsample of 77 adolescents, and 9 key informant interviews with service providers. Using the Patient Health Questionnaire-8, 9% of adolescents show signs of moderate-to-severe depression, and 19% reported moderate-to-severe anxiety, according to the Generalized Anxiety Disorder-7, with older adolescents (15–19 years) more vulnerable overall, and older girls more prone to self-harm ideation. However, older boys were significantly more likely to turn to substance use as a coping mechanism than older girls (18% vs. 6%). The drivers of these negative mental health impacts during the pandemic include deepening household economic vulnerabilities, heightened intra-family tensions (boys and men spending more time at home, increasing domestic work burdens on girls and women), and isolation from peer networks, especially for girls. We conclude by discussing implications for policy and programming, in line with Sustainable Development Goal 3, to promote mental health and well-being for all. Measures include investing in age- and gender-responsive interventions (including social protection) to support positive coping repertoires among adolescents, mitigating risks of substance abuse, investing in counseling services (online and in-person), and paying particular attention to the most disadvantaged adolescents, especially those out of formal education.

Keywords: Adolescent, Gaza, Covid-19, Mental, Health

Introduction

Adolescent mental health is increasingly recognized as a critical concern globally, with recent data indicating that suicide is one of the top 5 causes of death for boys and girls aged 15–19 years [1]. Adolescent psychosocial vulnerabilities in the Middle East and North Africa (MENA) region are more pressing still: the prevalence of mental disorders (17.3% for girls and 16.8% for boys) is the second highest in the world [1]. The Covid-19 pandemic, with associated lockdowns and school closures, has exacerbated the situation. There is, however, limited available evidence around the psychosocial and mental health of adolescents in conflict affected contexts particularly during Covid-19 pandemic [2, 3].

To explore this issue in the MENA context, this article focuses on the experiences of adolescents in the Gaza Strip, drawing on mixed-methods research carried out in late 2020 in refugee camp and noncamp settings. The sample involved phone surveys with 505 adolescent girls and boys (aged 12–19 years) and their caregivers, in-depth qualitative interviews with a subsample of 77 adolescents, and 9 key informant interviews with service providers.

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Drawing on self-reported measures of anxiety (using the Generalized Anxiety Disorder, GAD-7[1]) and depression (using the Patient Health Questionnaire, PHQ-8[2]), as well as modules related to whether adolescents had received support during the pandemic and their access to peer networks and trusted adults, we explore the patterning of adolescent mental health. We pay particular attention to gender differences and educational status. We also discuss the key drivers of the mental health toll of the pandemic, including deepening household economic vulnerabilities due to pandemic-related lockdowns; heightened intra-family tensions and isolation from peer networks due to the closure of schools and recreational centers.

The article concludes by discussing the implications of our findings for policy and programming, and making progress toward the Sustainable Development Goals (SDGs), particularly SDG targets 3.4, "to promote mental health and well-being for all," SDG 1.5 on "promoting resilience among the poor and people in vulnerable situations," and SDG 10, "ensuring equal opportunity and reducing inequalities of outcome"—recognizing, as the World Health Organization (WHO) has powerfully argued, that "mental ill-health is both a consequence and a cause of inequalities" [4].

Background

Sociopolitical and economic context as determinants of mental health

Adolescence is a time of heightened psychosocial vulnerability; half of all mental illnesses begin by age 14, and neuropsychiatric disorders are the leading cause of disability in adolescence (1.6%). Girls are more likely (than both younger girls and their male peers) to show signs of mental disorders, especially anxiety and depression [5]. As demands on their time grow, girls have fewer opportunities to pursue their own interests and identities; they are increasingly isolated socially as their bodies mature, often being pulled out of school, deprived of contact with their friends, and confined to the home—especially upon marriage. In conflict-affected contexts in particular, girls are often at greater risk of sexual and gender-based violence and the resulting psychosocial trauma [6]. There are also emerging challenges linked to the rapidly expanding exposure to digital spaces, in the absence of adequate guidance on how to stay safe online [7].

Overview of adolescent mental health vulnerabilities and mental health services in Gaza

The evidence on psychosocial well-being and mental health of adolescents in Gaza is complex. Studies have found rates of depression, anxiety, and post-traumatic stress disorder (PTSD) as high as 70% [8, 9]—with poverty and war being the main drivers (for girls and boys alike). Some studies have found that while girls and young women are less stressed by economic hardship than their male peers [10], they are considerably more disadvantaged by mobility constraints—which also preclude access to social support—and by the need to uphold family honor [8]. When asked to identify the most important health issue they faced, 26.1% of young women reported psychological problems [11].

Before the Covid-19 pandemic, there were a large number of mainly nongovernmental and community-based organizations providing psychosocial services in Gaza, but only two—the Ministry of Health and the Gaza Community Mental Health Programme—provide specialist services [12]. The Ministry (the main service provider and regulator) operates 6 community mental health centers and provides inpatient care (psychiatry) at Gaza's only mental health hospital, while the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA) is the second major provider, delivering preventive services at its health and relief centers. UNRWA and the Ministry both also run a large-scale school counseling program. Despite the range of services available, organizational, cultural, and psychological barriers often prevent young people accessing them, and services for adolescents are rarely tailored to their age or gender [12].

Covid-19 context in Gaza

Following the first reported cases of Covid-19 in the West Bank in March 2020, the President of the State of Palestine declared a state of emergency, closing schools and places of worship. Lockdown measures included curfews, restrictions on movement within and across governorates, and strict penalties for noncompliance with social distancing policies [13]. Some primary health care centers were closed as resources were redeployed to combat the pandemic [14]. Notwithstanding, serious concerns about how quickly Covid-19 would spread in Gaza (a very densely populated area), the consequences of the Israeli blockade and the limited number of entry points to the Gaza Strip (just two) have played a somewhat protective role in limiting the rapid transmission of the virus.

As of December 2021, there were 457,950 cases of Covid-19 reported in Palestine, including 186,125 in Gaza [15]. The total number of deaths was 4,770, with 1,627 in Gaza (case fatality rate of 1%) [15]. At the time of writing (February 2022), there were 2,758 active cases, with 1,783 in Gaza [15]. Palestine started a vaccination program in late February 2021 in Gaza, and by December 2021, almost 1.4 million people had been fully vaccinated, including 378,487 in Gaza (representing approximately 26% of the population overall but just 18% of the Gazan population) [15].

Materials and methods

Study population and sampling approach

This article draws on the findings of mixed-method research carried out between October 2020 and January

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1. Anxiety was assessed using the Generalized Anxiety Disorder 7 (GAD-7) scale, a screening tool routinely used to test for various anxiety disorders. A score of 10 or higher indicates the presence of moderate-to-severe anxiety.

2. The Patient Health Questionnaire (PHQ-8) is a short screening tool for depression, which scores patients on a scale of 1–24. A PHQ-8 score of 10 or higher indicates the presence of moderate-to-severe depression.

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Table 1. Characteristics of surveyed adolescents ($n = 505$)

Variable	Number	Percentage
Male	251	49.7
Female	254	50.3
Age 12–14	201	39.8
Age 15–19	304	60.2
Living in a refugee camp	147	29.1
Living outside refugee camp	358	70.9
Registered refugee	327	64.8
Non-refugee	178	35.2
Having a functional disability	54	17.8
Not having disability	250	82.2
Ever married	50	9.9
Never married	455	90.1
Married adolescent lives with in-laws/extended family	29	58.0
Out-of-school boys	59	23.5
Out-of-school girls	49	19.3
Out-of-school adolescents in total (boys and girls)	108	21.4

Table 2. Characteristics of total qualitative adolescents' sample ($n = 77$)

Variable	Number
Male	32
Female	45
Age 12–14	22
Age 15–19	55
Registered refugee	61
Non-refugee	16
Having a functional disability	15
Not having disability	62
Ever married	8
Never married	69
Out-of-school boys	5
Out-of-school girls	4
Out-of-school (boys and girls)	9
Total	77

2021 in 5 governorates of the Gaza Strip. Quantitative data was collected through phone surveys with 505 girls and boys aged 12–19 years and their caregivers. Participants were selected randomly using a sampling frame provided by the Palestinian Central Bureau of Statistics (PCBS). Subsamples of vulnerable and disadvantaged adolescents were drawn from camps and urban settings in all 5 governorates through a snowballing sampling technique, including girls and boys who had dropped out of school (see **Table 1** for more details).

Quantitative data were complemented by 77 qualitative virtual interviews with a purposively selected sample of adolescent boys and girls to complement the survey, including those in and out of school. In-person interviews were conducted with adolescents with a hearing impairment, in a convenient and safe location, facilitated by a sign language translator. There were also 9 virtual key informant interviews conducted with selected community leaders, education and health providers, and health and social workers (see **Table 2** for more details).

Data collection and analysis

Quantitative data

Following a 3-day training course to orient 12 female data collectors from the localities surveyed and 3 female supervisors on the quantitative data collection process and survey administration, the survey (piloted with 38 households) and the written protocol developed for the data collection process were translated into Arabic. Phone surveys (60 min for adolescents; 20 min for caregivers) were conducted using tablets and computer-assisted telephone interviewing software. The response rate was high (90%).

The survey collected data on education, health and nutrition, mobility and social opportunities, paid work, and community impacts of Covid-19, as well as household income, health and food security, and pandemic impacts (see the Gender and Adolescence: Global Evidence [GAGE] website for the survey instruments) [16]. It also asked about participants' psychosocial well-being during the pandemic and what challenges they faced. It included self-reported measures of anxiety (using the Generalized Anxiety Disorder, GAD-7) and depression (using the Patient Health Questionnaire, PHQ-8), and asked about ability to seek help through support networks and trusted persons. Coping was measured using the Brief Resilient Coping Scale (BRCS)[3], and a separate BRCS scale that includes items on coping during Covid-19.

Qualitative data

A one-day training session was conducted virtually to orient 4 qualitative researchers on the data collection process and tools, which were refined after piloting. The average duration of each interview was 60 min, and for key informant interviews, 45 min. A debriefing session was conducted virtually immediately after data collection to discuss the emerging findings.

3. BRCS is a 4-item scale (0–16) that measures tendencies to cope with stress in a highly adaptive manner. A score of 0–9 indicates low resilient coping and a score of 13–16 indicates high resilient coping. We adapted BRCS by adding Covid-19 specific 5 items (0–20). A score of 0–11 indicates low resilient coping and a score of 16–20 indicates high resilient coping.

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Data analysis

Cleaning and analysis of the quantitative data was conducted using the Statistical Package for the Social Sciences (SPSS) 25. Descriptive analysis was conducted first followed by inferential analysis to explore the relationships between the study variables. *P* value was considered as statistically significant when it equals or falls under 0.05. The qualitative interviews were recorded, transcribed, translated, and thematically coded using a coding book informed by the GAGE conceptual framework [17]. Coding was completed using MAXQDA 12 software.

Ethics

The international code of ethics was followed, and permissions for the study were sought and granted from Gaza's Helsinki Committee and the Ministry of Interior in Gaza. Research ethics approvals were also obtained from Al-Quds University and George Washington University. Verbal consent was obtained from participants aged 18 years and above, and verbal assent was sought for those under 18 years, as well as verbal consent from their caregiver (typically the primary female caregiver). Enumerators were oriented on how to interact with adolescents in an age- and gender-responsive way.

Limitations of the study

As with other cross-sectional surveys, this study takes a snapshot of the situation at a point in time. Self-reported measures may contribute to recall bias as participants are sometimes unable to describe their experiences, feelings, and attitudes accurately. The phone survey was also a major barrier to engaging in more participatory interactive qualitative methods. Participants may also have had limited privacy during the phone calls, particularly girls living in camps. However, the research team had received training to address such challenges.

Key findings

We now turn to our findings. The characteristics of the adolescents surveyed can be seen in **Table 1** and **Table 2**. We begin with a discussion of adolescent experiences during Covid-19 and the multiple and intersecting challenges that they faced across a range of domains: health and food security, education, age- and gender-based risks of violence, social connectedness, voice and agency, and economic security and livelihood opportunities. After discussing adolescent coping responses, we then present our findings on adolescent outcomes from 3 psychosocial well-being and mental health scales, to assess the mental health toll of the pandemic on adolescent girls and boys. We note that while the qualitative findings inform the narrative discussion below, due to space constraints, we present only a limited number of illustrative quotes in **Table 3** and refer to these in our presentation of the findings.

Adolescent experiences during Covid-19

Our findings suggest that the pandemic and associated public health measures have impacted adolescents' psychosocial well-being and mental health differently according to the intersecting disadvantages they face. Here we discuss the multidimensional effects on their capabilities—health and nutrition, education and learning, bodily integrity and freedom from violence, connectedness, livelihoods, and voice and agency—and the toll that this has had on their psychosocial well-being and mental health. We discuss each of these in turn below (see also Table S1).

Health and nutrition-related challenges

When asked about their overall health status, 90% of adolescents perceived their health as "good" or "very good"; however, 19% of girls and 17% of boys said they felt their health had worsened since the onset of the pandemic. Among those who reported needing to see a health-care provider, 28% of boys and 33% of girls had not been able to due to pandemic-related restrictions; 16% of girls and 9% of boys were unable to get necessary medications, though gender differences were not statistically significant (see Table S1). Only 80% of adolescents who had dropped out of school perceived their health as "good" or "very good" compared to 92% of those enrolled in school. To the best of the authors' knowledge, no evidence exists that shows the differences in perceptions about health status between adolescents who were enrolled versus those who were not enrolled in education prior to Covid-19 in Gaza.

Our survey results suggest that the pandemic has had a major impact on adolescent food security, with 42.6% of boys and 38.2% of girls reporting having been hungry due to lack of food at least once during the past 4 weeks. Furthermore, 30% of boys and 24% of girls said they had been hungry more often during the pandemic. Adolescents also reported consuming less diverse diets as a result of the pandemic; 42% of boys and 31% of girls said they consumed less protein and 38% ate less fruit and vitamin A-rich vegetables. More adolescents who were out of school reported experiencing hunger (61%) in the past month than their counterparts who were enrolled (35%).

Our findings also suggest that Covid-19 has visible impacts on physical health, including sleeping fewer hours (18% of boys and 19% of girls) (**Table 4**). The impact of the pandemic on levels of physical activity was particularly striking: 45% of boys and 18% of girls reported a reduction in the number of days on which they did physical activity for at least 30 min (girls' participation in physical activities was limited even before the pandemic) [18].

Our survey also found some gender and age differences in other coping responses, with significant health implications. Perhaps not surprisingly, cigarette smoking was far more common among boys: 15% of those aged 15 and older reported ever having smoked cigarettes, and 17% had ever smoked shisha pipe (the figure for girls the same age was just 2%). Moreover, among boys who were regular smokers, 35% reported an increase in smoking during the pandemic. However, 57% of regular smokers said they had either reduced the number of cigarettes smoked or stopped smoking altogether; qualitative data suggests this is probably due to financial constraints. One striking

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Table 3. Adolescent voices on the psychosocial experiences of the Covid-19 pandemic

Quote 1: I know a girl who is 21 years old, and she died because she faces violence from her dad. There are also a lot of people who face depression. Psychiatric therapy sessions are urgently needed as there are many girls who face violence during the corona crisis and we need to protect them. Also, there needs to be a special helpline for girls to call for help whenever they are in danger as there are a lot of girls who suffer. (16-year-old adolescent girl, Gaza)

Quote 2: There is more connection in my family than before Corona; we become closer than before. So, I try as much as I can to enjoy the family atmosphere. Additionally, I try to contact my friends usually; I contact them every day. Furthermore, I try to be active on the social media as an active girl who shares in the youth groups; we talk about several youth issues and the issues which the youth suffer from. Additionally, I read novels and I participate in online volunteer activities. (18-year-old adolescent girl, Gaza)

Quote 3: The corona situation has affected relationships and friendships. For example, now no one visits us or enters our house! They're scared, and we don't want them to come because we might God forbids but we might have something and infect them, and of course, they don't want to visit because they're scared for their lives and everyone is afraid and wants to secure themselves. (19-year-old adolescent girl, Gaza)

Quote 4: The area is dead economically, there is no movement at all, neither cars nor anything else, the police are present all the time, and I provide my greetings to them and for the white army [nurses] because of their effort in Gaza to prevent the spread of the virus, and at the level of movement, generally it's a slow death economically . . . the economic situation is so bad honestly! (17-year-old adolescent boy, Gaza, out-of-school)

Quote 5: During the pandemic the males say that are watching TV serials continuously while the females say that they have tons of household chores, like washing dishes, sweeping, cleaning, and laundry. (19-year-old adolescent boy, Gaza)

Quote 6: I feel bored and hate life . . . No one can help, nobody was able to help me with this . . . . For example, when you tell someone that you feel bored, they would say I feel more bored and lonely than you! I mean no one cares about this, everyone feels bored and lonely and that's it. (17-year-old adolescent boy, Gaza)

Quote 7: This situation [coronavirus pandemic] made a ring of the negative energy around me because of the external conditions and the worries regarding the situation in the Gaza Strip because we don't have in Gaza the capabilities to fight this virus. So, the negative feeling which I have passed is the fear; I feel worried and afraid if the situation evolves more than this and the virus becomes widespread. (18-year-old adolescent girl, Gaza, out of school)

Quote 8: A close friend of mine from school tried to commit suicide during the coronavirus period. I asked her why she said that she has a difficult life and that she can't tell anyone about it . . . . I told her it was wrong, and that she will die an infidel . . . . I think it was both violence and the financial situation . . . . She is the only daughter . . . And she is under a lot of pressure at home. (15-year-old adolescent girl, Gaza)

difference is that 28% of adolescents who are out of school reported ever smoking, compared to 9% of their peers still in school.

Among adolescents aged 15 and older, 22% of boys and 8% of girls thought that marijuana consumption had increased among adolescents of the same age and gender as them, while 17% of boys and 8% of girls thought that young people of the same age and gender had increased their use of other illicit drugs (see **Table 4**).

Education and learning-related challenges

Our survey suggests that the school enrollment rate before Covid-19 favored girls (77% for boys, 81% for girls). The vast majority (83%) of in-school girls and boys (76%) received some form of family support to enable them to continue their studies during Covid-related school closures, ranging from help with schoolwork (53%), giving them a space to study (80%) or reducing their time spent on chores (31%). Among those enrolled, 68% of girls and 57% of boys reported having had some form of contact with their teacher in the 7 days prior to the survey; however, only 45% of boys and 58% of girls had received feedback from a teacher in the same period (see Table S1). Gender differences in each case were statistically significant. A sizable number of respondents said that their ability to access distance learning was impaired by connectivity problems, resource deficits, and/or time constraints; 24% of boys and 34% of girls reported a lack of (or unreliable) Internet connections, with statically significant gender differences (Table S1).

Bodily integrity and violence-related challenges

When asked to think about their own community, older adolescents (aged 15–19) reported that household violence had increased since the pandemic began, against boys (69%) and girls (67%), with no statistically significant difference by gender (see Table S1). However, they also observed that there was increased household violence against women by male family members (reported by 65% of boys and 73% of girls). When asked about challenges that other adolescents might be experiencing, 49% of both boys and girls noted that being "yelled at" by parents had increased. Almost two-thirds of adolescents (64%) who had dropped out of school reported that parents yelling was a challenge for them during the pandemic; 47% of enrolled adolescents reported the same. Furthermore, 20% responded that fathers were more violent physically toward mothers, 24% said parents hitting adolescents had increased (reported by 25% of boys and 23% of girls), and 30% of boys and 39% of girls reported that bullying by siblings had increased.

The mean score for adolescent girls in the combined violence index (calculated from responses to the vignette

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Table 4. Distribution of responses related to adolescent coping and residence

Variable	Male		Female		Sig.
	Number	Percentage	Number	Percentage	
People in the community are smoking and using shisha more (+15), $n = 300$	124	81.6	125	84.5	0.507
Adolescent experienced disrupted sleep	51	20.3	64	25.2	0.191
Comparing the time right before Covid to now, adolescent is sleeping less	44	17.5	48	18.9	0.594
Adolescent slept less than 8 h in past 24 h	55	21.9	59	23.2	0.724
Adolescent reports fewer days of physical activity (30+ min) than before pandemic	112	44.6	46	18.1	0.001[a]
Adolescent ever smoked cigarettes	23	15.0	0	0.0	0.001[a]
Adolescent ever smoked shisha pipe	26	17	3	2	0.001[a]
Adolescent increased smoking cigarettes since pandemic (among smokers)	8	34.8			
Adolescent decreased/stopped smoking cigarettes since pandemic (among smokers)	13	56.5			
Adolescent increased smoking shisha since pandemic (among smokers)	3	12	2	66.7	0.019[a]
Adolescent decreased/stopped shisha since pandemic (among smokers)	17	68	1	33.3	0.236
Respondent thinks adolescents of own gender smoke marijuana in community	60	43.5	27	20	0.001[a]
Respondent thinks adolescents smoking marijuana in community has increased	30	21.7	11	8.1	0.002[a]
Respondent thinks adolescents of own gender use drugs in community	44	32.4	21	15.8	0.002[a]
Respondent thinks adolescent drug use in community has increased	23	16.9	10	7.5	0.019[a]

Brief Resilient Coping Scale (BRCS)

Characteristics of Adolescents	Low Resilient Coping (BRCS 0–9)			Low Resilient Coping (BRCS Covid-19 Specific 0–11)		
	Number	Percentage	*P* Value	Number	Percentage	*P* Value
Boys	71	28.5	0.087	90	35.9	0.694
Girls	63	24.9		82	32.3	
Younger cohort	54	27.3	0.558	68	33.8	0.112
Older cohort	80	26.3		104	34.2	
Living outside camp	79	22.1	0.001	116	32.4	0.334
Living in camp	55	38.2		56	38.1	
Non-refugee	40	22.5	0.220	55	30.9	0.480
Refugee	94	29.0		117	35.8	
Without disability	61	24.4	0.101	89	35.6	0.545
With disability	19	35.2		15	27.8	
Never-married girls	53	26.1	0.058	59	28.9	0.055
Ever-married girls	10	20.0		23	46.0	
In school pre-pandemic	107	27.2	0.355	115	29.0	0.001[a]
Out of school pre-pandemic	27	25.0		57	52.8	

[a]Statistically significant.

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exercise [16] about household violence being a challenge for adolescents in their community; 1.22 on a scale from 0–4) is similar to that of boys (1.28), with no statistically significant differences by gender. The qualitative findings, however, pointed to high levels of vulnerability among adolescent girls to gender-based violence that had been exacerbated during the pandemic on account of household stress (see **Table 3**, Quote 1).

Connectedness-related challenges

Nearly two-thirds of all adolescents (boys 68%; girls 65%) agreed that household stress had increased since the onset of the pandemic. Our survey findings suggest that within households, aggravated stress levels manifested in members getting angry more quickly or arguing more often than before the pandemic (reported by 58% of boys and 58% of girls). To learn more about adolescents' supportive networks during the pandemic, we asked whether the level of support they received from friends and family had changed. Findings were mixed: 30% of boys and 37% of girls reported receiving more support, while 19% of boys and 11% of girls reported receiving less support, and the gender differences were statistically significant. Similarly, there were mixed responses about giving support to others: 33.5% reported giving more support and 13% reported giving less support, with no statistically significant differences by gender. For those young people who reported that family support had been instrumental in their ability to cope with the stresses of the pandemic, closer bonds were family members were identified as a positive spillover effect (see **Table 3**, Quote 2), although these adolescents were in the minority.

Our findings suggest that peer support was more limited. Only 57% of boys and 54% of girls said they had a friend they could trust, while 69% of both boys and girls said they had an adult they could trust. Despite the importance of peer interactions for adolescents, 21% of boys and 34% of girls reported having no interaction with friends, in-person or online, and the gender difference was statistically significant. Young people in the qualitative research underscored that friendships were being negatively affected by the pandemic-related social distancing messages (see **Table 3**, Quote 3). More than half of boys (53%) and around two-thirds of girls (63%) had interacted with friends virtually in the past week, either by text messaging, through social media, or playing online games; gender differences were statistically significant.

Livelihoods-related challenges

The already chronic financial hardship experienced by households in Gaza has been exacerbated by the pandemic and associated measures. Our survey indicates that more than a quarter of households in Gaza (28%) reported having lost employment due to Covid-19, permanently or temporarily, and 58% lost some income. Our qualitative work underscored that adolescent boys were particularly affected by the mobility restrictions as their predominantly informal livelihoods are dependent on regular contact with customers (**Table 3**, Quote 4). Similarly, more than 95% of caregivers reported that their families were unable to buy enough food or had to change what they eat, and many families were forced into debt. Most households (80%) reported worrying that they could not meet daily needs, 45% were unable to buy essential food items in the past 7 days, and 46% were unable to buy essential hygiene items in the past 7 days. Similarly, 93% reported that many households are selling assets, while 75.3% reported an increase in begging. When adolescents were asked about particular stressors facing people the same age and gender as them, respondents most often identified difficulties obtaining household items, which was a source of increased tension. Only 34% of caregivers reported receiving any cash assistance from any organization.

Voice and agency-related challenges

Girls, particularly older girls, were more likely to rely on virtual methods to connect with friends. Among boys and girls, 25% reported "hanging out" or playing with friends in person in the past week; this percentage rose to 44% among boys and dropped to 6% among girls, with statistically significant gender differences. Nearly two-thirds of boys and three-quarters of girls reported spending more time on household chores and sibling care since the start of the pandemic (see Table S1 and **Table 3**, Quote 5 which underscores the disproportionate domestic and care work burden shouldered by girls during lockdowns). More girls (84%) than boys (78%) reported that their mobility had been moderately or completely restricted by the pandemic. Most notably, 48% of girls reported not having left the house in the past 7 days, compared with 17% of boys, with statistically significant differences by gender. Only 9% of boys and 2% of girls reported volunteering in community activities during the pandemic.

Adolescent coping and resilience

To measure coping, we used the BRCS and the BRCS Covid-19 specific scale. **Table 4** illustrates adolescent coping strategies, both overall and in response to the pandemic. The findings show a clear dichotomy in our sample, with 27% of all adolescents considered to have low resilience and only 9% high resilience.

On the Covid-19 specific scale, the proportion of adolescents showing low levels of resilience was even higher (34%); only 11% showed high resilience. Although in the quantitative data boys were not significantly more likely to score low on resilience than girls, this was a pattern that emerged starkly in the qualitative findings (**Table 3**, Quote 6). Similarly, age did not make a difference.

On the Covid-19 specific BRCS (see **Table 4**), the proportions of boys and girls scoring high on resilience were similar (10% for boys and 11% for girls). More worryingly, 36% of boys and 32% of girls scored low on resilience, although gender differences were not statistically significant (see **Table 4**).

In line with the broader disadvantages faced by adolescents out of school, on the Covid-19 specific scale, adolescents who had dropped out of school (53%) also exhibited much lower levels of resilience than their counterparts

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Table 5. Psychosocial and mental health challenges facing adolescents in Gaza during Covid-19

	Boys		Girls		
Variable	**Number**	**Percentage**	**Number**	**Percentage**	**Sig.**
More people are becoming very anxious or depressed (+15), $n = 302$	145	94.8	141	94.7	0.957
There is an increase in thoughts about self-harm, or people harming themselves (+15), $n = 300$	80	53	87	58.4	0.346

	PHQ-8 Score ≥ 10 (Moderate-to-Severe Depression)			If GAD-7 Score ≥ 10 (Moderate-to-Severe Anxiety)		
Differences in Mental Health Challenges by Characteristics Variables	**Number**	**Percentage**	***P* Value**	**Number**	**Percentage**	***P* Value**
Boys	21	8.4	0.478	43	17.1	0.275
Girls	26	10.2		53	20.9	
Younger cohort	10	5.0	0.006[a]	21	10.4	0.001[a]
Older cohort	37	12.2		75	24.8	
Living outside camp	29	8.1	0.139	73	20.4	0.212
Living in camp	18	12.3		23	15.6	
Non-refugee	20	11.2	0.276	50	22.5	0.148
Refugee	27	8.3		56	17.2	
Without disability	30	12	0.852	62	24.9	0.899
With disability	7	13		13	24.1	
Never-married girls	20	9.8	0.646	38	18.6	0.064
Ever-married girls	6	12		15	30.6	
In school pre-pandemic	26	6.5	0.001[a]	61	15.4	0.001[a]
Out of school pre-pandemic	21	19.6		35	32.7	

GAD-7 = Generalized Anxiety Disorder 7; PHQ-8 = Patient Health Questionnaire 8.

[a]Statistically significant.

still in school (29%), with strong statistically significant differences. Similar inequalities in coping capabilities were also reflected in the qualitative findings (see **Table 3**, Quote 7).

Psychosocial and mental health outcomes during Covid-19

Our findings suggest that Covid-19 has had devastating effects on the psychosocial well-being of adolescent in Gaza. More than half of boys (53%) and girls (58%) aged 15 and older believed that there was an increase in thoughts about self-harm or in the numbers of people harming themselves since the pandemic started. Heightened risk of suicidal ideation among adolescents was also echoed in the qualitative findings (see **Table 3**, Quote 8). When asked about the mental health of people in their community, 95% of both boys and girls said they felt that people were becoming more anxious and/or depressed (see **Table 5**).

Our findings also indicate that up to 9% of young Gazans may be experiencing moderate-to-severe depression, with around 19% experiencing moderate-to-severe anxiety. Depression was assessed using the PHQ-8; results showed that around 1 in every 10 adolescent participants had a score indicative of moderate-to-severe depression (≥10). Girls reported higher PHQ-8 scores than boys (10% of girls scored 10 or higher, compared with 8% of boys), though differences were not statistically significant. There were, however, significant differences by age: 12% of the older cohort scored 10 or higher, compared with 5% among the younger cohort.

Our survey also revealed a relatively high prevalence of moderate-to-severe anxiety. Around 19% of adolescents were assessed as having moderate-to-severe anxiety, scoring 10 or higher on the GAD-7 scale. Rates were higher among girls (21%) than boys (17%) but differences were not statistically significant (see **Table 5**). However, age was an important factor: more of the older cohort (25%) scored 10 or above on GAD-7 compared with the younger

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cohort (10%), and there were strong statistically significant differences. Findings also suggest that being in school is a protective factor against developing anxiety; 33% of adolescents who had left school scored 10 or above on the GAD-7 anxiety scale, compared with 15% of their peers still in education, and the differences were strongly statistically significant.

Interestingly, our findings affirm the reported links between anxiety and depression and suggest that when it comes to mental health challenges, one problem accentuates the other [19]. We found strong correlations between depression and anxiety ($r = 0.699$), with strong statistically significant associations between the two (P value $= 0.001$).

The poorest PHQ-8 scores were reported by children who left school before the onset of the pandemic; they scored 3 times higher than their peers who were still in school, and differences between the two subgroups were statistically significant (see **Table 5**).

Discussion

Our findings suggest that the pandemic has negatively impacted the key determinants of mental health among adolescents in Gaza. It has increased poverty and unemployment, and food insecurity, and made it more difficult for household to secure basic needs and earn their livelihood. Furthermore, it has reinforced restrictive gender norms experienced by adolescent girls. All these factors have worsened the already compromised psychosocial well-being of adolescents in Gaza, manifested in high rates of depression, chronic anxiety, PTSD, psychosomatic reactions, attention deficit disorder, loss of hope, chronic frustration, and conduct disorders [2, 20–22]. This situation requires urgent attention from policymakers and programmers.

Our study confirms that Covid-19 has put adolescent boys and girls in Gaza at greater risk of anxiety, depression, and exacerbated chronic frustration. Despite adolescents' tendency to internalize problems [1, 19], a considerable proportion of boys and girls scored more than 10 on the PHQ-8 depression and GAD-7 anxiety scales, indicating moderate-to-severe depression and anxiety (and note that there may be some underreporting). It is worth noting that credible evidence around the prevalence of depression and anxiety levels among adolescents in Gaza based on PHQ-8 and GAD-7 scales (consecutively) during the pre-Covid-19 era is lacking. Although girls tend to adopt positive coping approaches more so than boys [21–23], girls (especially older girls) had higher scores on the anxiety and depression scales, which reflects the greater multifaceted stressors they face, a phenomenon that has also been reported in other conflict-affected settings [24].

Our findings, consistent with the literature, also suggest that certain subgroups of adolescents are facing greater psychosocial stressors [24]. Girls (especially older girls) and adolescents from poorer households are more vulnerable, and again, in line with other studies [24], our findings indicate that children are least resilient when they are out of school.

The response to Covid-19 has a catastrophic impact on households and the national economy in Gaza. According to the PCBS [25], in 2020, gross domestic product per capita declined by 14% and public debts increased by 24% (compared to 2019), putting further pressure on households already struggling to meet basic needs, who suffered an immediate drop in their income due to Covid-19 [26]. Our findings are consistent with the literature around the effects of the pandemic in low- and middle-income countries on adolescent [27, 28] and underscored that the pandemic negatively impacted adolescent psychosocial well-being in multiple aspects especially for girls who suffer from compounded psychosocial vulnerabilities not only due to economic hardship but also violence at the household and community levels, decreased access to basic livelihoods, limited access to education, inadequate interactions and connectedness to the people outside their families, limited voice and agency, restrictive cultural norms, and discriminatory gender norms and practices, which exist all the time, but are often increased during crises [1, 2, 20].

Resilience and coping strategies are partly shaped by gender roles and norms, but also underpinned by pre-Covid vulnerabilities, especially in the case of young people out of formal education, and adolescents' access (or lack of) to formal and informal psychosocial support [2, 20]. Adolescents are clearly struggling to be resilient in the face of the pandemic, with only small proportions scoring high on resilience on both scales. One-quarter of respondents scored low for resilience on the BRCS scale, and one-third scored low on the Covid-19 specific scale. Despite their exposure to higher levels of stressors, girls maintained a resilience level similar to boys or even slightly better. This is probably due in part to girls and boys facing similar socioeconomic and age-related challenges [2, 20, 23], and to the more constructive coping approaches they develop, such as investing in education and communicating on social media with peers, which helped them to counteract the consequences of those daily stressors. As such, and as we discuss in the conclusions, our findings suggest a need to promote more positive coping strategies among boys such as providing training on resilience, conflict resolution and dealing with stress, building basic life skills, investing in education, promoting adolescent access to psychosocial support, and strengthening ties and nurturing relationships between boys and their families.

Conclusions

Not only has the pandemic exacerbated preexisting vulnerabilities among adolescents, but it has brought new vulnerabilities, which risk leaving young people even further behind. Our findings underscore the importance of developing robust age- and gender-responsive psychosocial and mental health interventions for adolescents as part of any emergency response, targeting particular at-risk groups, including adolescents who have dropped out of school. The latter are more likely to lack access to support and services, essential livelihoods, and opportunities

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for socializing and interaction; therefore, they need to be reached first.

In line with the SDG 3 commitment to promote mental health and well-being for all, this article reinforces the need to reconceptualize how we address psychosocial challenges facing adolescents during crises. Our findings underscore that mental health services and support should not be seen just as an "optional extra" but rather as a critical component of life-course health promotion, and to avoid longer term mental illnesses that can have dramatic lifelong consequences. Our findings further suggest that adolescent mental health services should be incorporated into public health response plans to ensure adolescent girls and boys can access the services, resources, and information they need, and twinned with increasing social support through peer-to-peer interactions, school-based interventions, and the use of adolescent-friendly approaches such as online platforms. In this regard, it is vital to engage young people—girls and boys and from diverse social backgrounds—in emergency and recovery responses, allocating resources to them and enabling them to meaningfully contribute to policy dialogue and program design and evaluation.

In keeping with the SDG 10 target on reducing inequality, gender inequalities that have resulted in greater vulnerabilities for girls, and older girls should be addressed by progressively developing more gender-equitable policies and programs, and engaging in their implementation with men and women, schools, youth and women's groups, community leaders, religious leaders, and policymakers. Our findings indicate that many adolescents (especially girls) experience loneliness, are home-bound, and have limited access to support (from trusted adults or friends); this calls for greater investments in psychosocial counseling as well as informal support through peer-to-peer support groups at schools, in the community, or online [29, 30].

Finally, in line with SDG target 1.5 which aims to build the resilience of people living in poverty and in vulnerable situations, strategies and policies at the national level should address the key determinants of psychosocial and mental well-being to induce positive change, including economic growth and access to livelihood opportunities for youth, especially those out of formal education as our findings underscored. Greater efforts are also needed to enhance resilience, educate adolescents and the community at large about the consequences of negative coping approaches such as substance abuse and smoking (especially among boys), and encourage positive coping strategies, such as building life skills, enhancing access to recreational and voluntary activities, and seeking formal and informal support. Improving educational quality, investing in interventions to strengthen community cohesion, and ultimately political resolution of the Palestinian case are also critical as they underpin the chronic psychosocial vulnerabilities that young people in Gaza experience.

Data accessibility statement

The data collected in this study is subject for sharing according to GAGE data sharing policy. Currently, the set of quantitative data is not ready yet for public sharing as it requires processing and measures to ensure data confidentiality and protecting rights of participants. Potential users can contact the GAGE program hub office to enquire about use ahead of public archiving (gage@odi.org.uk).

Supplemental files

The supplemental files for this article can be found as follows:

Table S1. Adolescent experiences during Covid-19, and pre-existing vulnerabilities

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Competing interests

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