DGBV Analysis

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2025-09-21

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#### -----------------------------  
# Install packages if not installed  
# -----------------------------  
list.of.packages <- c("readxl","dplyr","janitor","tidyverse","ggplot2","flextable","officer","gtsummary","gt","vcd")  
new.packages <- list.of.packages[!(list.of.packages %in% installed.packages()[,"Package"])]  
if(length(new.packages)) install.packages(new.packages)  
  
# Load libraries  
library(readxl)  
library(dplyr)

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(janitor)

##   
## Attaching package: 'janitor'

## The following objects are masked from 'package:stats':  
##   
## chisq.test, fisher.test

library(tidyverse)

## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──  
## ✔ forcats 1.0.0 ✔ readr 2.1.5  
## ✔ ggplot2 4.0.0 ✔ stringr 1.5.2  
## ✔ lubridate 1.9.4 ✔ tibble 3.3.0  
## ✔ purrr 1.1.0 ✔ tidyr 1.3.1

## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()  
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

library(ggplot2)  
library(flextable)

##   
## Attaching package: 'flextable'  
##   
## The following object is masked from 'package:purrr':  
##   
## compose

library(officer)

##   
## Attaching package: 'officer'  
##   
## The following object is masked from 'package:readxl':  
##   
## read\_xlsx

library(gtsummary)

##   
## Attaching package: 'gtsummary'  
##   
## The following object is masked from 'package:flextable':  
##   
## continuous\_summary

library(gt)  
library(vcd)

## Loading required package: grid

# -----------------------------  
# Load dataset  
# -----------------------------  
file\_path <- "D:/paid task/The Digital Dimension of Gender-Based Violence in Bangladesh\_ Challenges and Ways Forward .xlsx"  
data <- read\_excel(file\_path)  
  
# Clean column names  
data <- data %>% clean\_names()  
  
# Inspect data  
str(data)

## tibble [250 × 28] (S3: tbl\_df/tbl/data.frame)  
## $ timestamp : chr [1:250] "2025/08/28 12:38:49 am GMT+6" "2025/08/28 12:38:55 am GMT+6" "2025/08/28 12:40:22 am GMT+6" "2025/08/28 12:44:49 am GMT+6" ...  
## $ q1\_name : chr [1:250] "Mahim hasan" "Iqra Tasmeem" "Md. Iqbal Hossain" "Maisha Mumtahina Islam" ...  
## $ q2\_age\_group : chr [1:250] "18–22 years" "23–27 years" "18–22 years" "18–22 years" ...  
## $ q3\_gender : chr [1:250] "Male" "Female" "Male" "Female" ...  
## $ q4\_religion : chr [1:250] "Islam" "Islam" "Islam" "Islam" ...  
## $ q5\_educational\_qualification : chr [1:250] "Bachelor’s Degree (ongoing/completed)" "Bachelor’s Degree (ongoing/completed)" "Bachelor’s Degree (ongoing/completed)" "Bachelor’s Degree (ongoing/completed)" ...  
## $ q6\_marital\_status : chr [1:250] "Unmarried" "Unmarried" "Unmarried" "Unmarried" ...  
## $ q7\_occupation : chr [1:250] "Student" "Student" "Student" "Student" ...  
## $ q8\_where\_do\_you\_live : chr [1:250] "Urban" "Urban" "Urban" "Urban" ...  
## $ q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence : chr [1:250] "Yes, someone I know" "Yes, someone I know" "Yes" "Yes, someone I know" ...  
## $ q10\_if\_yes\_what\_forms\_of\_digital\_gbv\_were\_experienced : chr [1:250] "Abusive/insulting messages" "Abusive/insulting messages;Sexual threats/blackmail" "Abusive/insulting messages" "Abusive/insulting messages;Sexual threats/blackmail;Hate speech (gender, religion, identity)" ...  
## $ q11\_how\_effective\_do\_you\_think\_current\_reporting\_mechanisms\_police\_stations\_online\_portals\_hotlines\_are\_in\_addressing\_dgbv : chr [1:250] "Effective" "Neutral" "Not effective at all" "Less effective" ...  
## $ q12\_have\_you\_ever\_reported\_any\_dgbv\_to\_any\_authority\_police\_cyber\_unit\_ngo\_platform : chr [1:250] "No" "No" "No" "No" ...  
## $ q13\_what\_can\_be\_the\_main\_barriers\_that\_stopped\_you\_or\_others\_you\_know\_from\_reporting : chr [1:250] "Lack of proper judgement/legal support" "Lack of good governance/system inefficiency" "Lack of good governance/system inefficiency" "Lack of good governance/system inefficiency;Policy or law awareness shortage;Lack of proper judgement/legal support" ...  
## $ q14\_do\_you\_think\_victims\_from\_marginalized\_groups\_rural\_women\_minorities\_face\_more\_difficulty\_in\_reporting\_cases : chr [1:250] "Yes" "Yes" "Yes" "Yes" ...  
## $ q15\_do\_you\_think\_social\_media\_increases\_the\_rate\_of\_online\_gender\_based\_violence : chr [1:250] "Strongly Disagree" "Agree" "Strongly Agree" "Neutral" ...  
## $ q16\_which\_social\_media\_platform\_do\_you\_think\_online\_gender\_based\_violence\_happens\_the\_most : chr [1:250] "Facebook" "Facebook" "Facebook" "Instagram" ...  
## $ q17\_do\_you\_think\_social\_media\_platforms\_are\_helpful\_in\_preventing\_online\_gbv : chr [1:250] "Disagree" "Disagree" "Neutral" "Neutral" ...  
## $ q18\_do\_you\_believe\_social\_media\_safety\_features\_blocking\_reporting\_privacy\_settings\_are\_effective\_and\_keep\_you\_safe : chr [1:250] "No" "No" "Yes" "No" ...  
## $ q19\_in\_your\_opinion\_what\_are\_the\_most\_effective\_institutional\_measures\_to\_reduce\_dgbv\_in\_bangladesh : chr [1:250] "Stronger cyber laws & punishment" "Stronger cyber laws & punishment" "Stronger cyber laws & punishment" "Stronger cyber laws & punishment" ...  
## $ q20\_do\_you\_think\_the\_existing\_laws\_and\_policies\_in\_bangladesh\_are\_adequate\_to\_prevent\_dgbv : chr [1:250] "Not adequate" "Not adequate" "Don’t know" "Not adequate" ...  
## $ q21\_which\_actor\_should\_play\_the\_leading\_role\_in\_combating\_digital\_gbv : chr [1:250] "Universities & educational institutions" "Universities & educational institutions" "Joint responsibility of all" "Joint responsibility of all" ...  
## $ q22\_what\_future\_initiatives\_should\_bangladesh\_adopt\_to\_ensure\_safer\_digital\_spaces\_for\_women : chr [1:250] "Incorporating digital safety in school/university curriculum" "International cooperation with global tech companies" "Stronger collaboration between government, NGOs, and social media platforms" "Increasing female participation in cyber-policing and ICT sectors" ...  
## $ x1\_in\_your\_opinion\_what\_changes\_digital\_practices\_laws\_or\_policies\_are\_most\_necessary\_to\_reduce\_the\_extent\_of\_dgbv : chr [1:250] NA "Tha laws should be more strict" "I don’t know certainly but I believe changes in law, like establishing, promoting and implementing strict laws "| \_\_truncated\_\_ "block or censor nude pictures completely" ...  
## $ x2\_can\_you\_describe\_your\_experience\_or\_what\_you\_have\_observed\_about\_how\_long\_it\_usually\_takes\_to\_receive\_a\_response\_after\_reporting\_a\_digital\_gbv\_case: chr [1:250] NA "It takes about a week or so" "I didn’t experience or observe anyone who reported digital GVB case.." "no effective response" ...  
## $ x3\_in\_your\_opinion\_how\_do\_victims\_usually\_cope\_with\_digital\_harassment\_if\_they\_do\_not\_report\_it : chr [1:250] NA "I think they just try to block and move on" "I think, they either ignore or block them online." "they end up having to accept it and continue through this hardship. sometimes ptsd comes back" ...  
## $ x4\_how\_can\_social\_media\_and\_digital\_platforms\_be\_used\_to\_raise\_awareness\_and\_combat\_gender\_based\_violence\_in\_bangladesh : chr [1:250] NA "Social media can promote the after effects of violence" "Establishing, promoting and implementing strict laws. If people see abusers getting punished I think they might"| \_\_truncated\_\_ "spreading actual news" ...  
## $ x5\_what\_do\_you\_think\_are\_the\_biggest\_gaps\_in\_the\_current\_system\_to\_combat\_dgbv : chr [1:250] NA "The biggest gap is the lack of technology to permanently block someone who is harassing online" "I think there are some laws but they are not strict enough and most importantly the law enforcers are ignorant "| \_\_truncated\_\_ "its arranged by men so they dont know what its like ever" ...

head(data)

## # A tibble: 6 × 28  
## timestamp q1\_name q2\_age\_group q3\_gender q4\_religion q5\_educational\_quali…¹  
## <chr> <chr> <chr> <chr> <chr> <chr>   
## 1 2025/08/28 … Mahim … 18–22 years Male Islam Bachelor’s Degree (on…  
## 2 2025/08/28 … Iqra T… 23–27 years Female Islam Bachelor’s Degree (on…  
## 3 2025/08/28 … Md. Iq… 18–22 years Male Islam Bachelor’s Degree (on…  
## 4 2025/08/28 … Maisha… 18–22 years Female Islam Bachelor’s Degree (on…  
## 5 2025/08/28 … All Mu… 18–22 years Male Islam Bachelor’s Degree (on…  
## 6 2025/08/28 … Minhaz… 18–22 years Male Islam Bachelor’s Degree (on…  
## # ℹ abbreviated name: ¹​q5\_educational\_qualification  
## # ℹ 22 more variables: q6\_marital\_status <chr>, q7\_occupation <chr>,  
## # q8\_where\_do\_you\_live <chr>,  
## # q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence <chr>,  
## # q10\_if\_yes\_what\_forms\_of\_digital\_gbv\_were\_experienced <chr>,  
## # q11\_how\_effective\_do\_you\_think\_current\_reporting\_mechanisms\_police\_stations\_online\_portals\_hotlines\_are\_in\_addressing\_dgbv <chr>,  
## # q12\_have\_you\_ever\_reported\_any\_dgbv\_to\_any\_authority\_police\_cyber\_unit\_ngo\_platform <chr>, …

# -----------------------------  
# Demographic Summary  
# -----------------------------  
demo\_table <- data %>%  
 select(q3\_gender, q2\_age\_group, q5\_educational\_qualification) %>%  
 tbl\_summary(  
 by = NULL,  
 statistic = all\_categorical() ~ "{n} ({p}%)",  
 missing\_text = "0"  
 )  
  
demo\_flex <- as\_flex\_table(demo\_table) %>%  
 set\_caption("Demographic Summary") %>%  
 autofit() %>%  
 bold(i = 1, bold = TRUE)  
  
demo\_flex

Demographic Summary

| **Characteristic** | **N = 250**1 |
| --- | --- |
| **q3\_gender** |  |
| Female | 117 (47%) |
| Male | 133 (53%) |
| q2\_age\_group |  |
| 18–22 years | 141 (56%) |
| 23–27 years | 70 (28%) |
| 28–32 years | 21 (8.4%) |
| 33 years and above | 3 (1.2%) |
| Below 18 | 15 (6.0%) |
| q5\_educational\_qualification |  |
| Bachelor’s Degree (ongoing/completed) | 180 (72%) |
| BDS | 1 (0.4%) |
| Diploma in agriculture (completed) | 1 (0.4%) |
| Doctor | 1 (0.4%) |
| Higher Secondary (HSC) | 25 (10%) |
| honours | 1 (0.4%) |
| Master’s Degree (ongoing/completed) | 26 (10%) |
| MBBS | 1 (0.4%) |
| Secondary (SSC) | 13 (5.2%) |
| Third year medical student | 1 (0.4%) |
| 1n (%) | |

# -----------------------------  
# DGBV Frequency (Q9)  
# -----------------------------  
dgbv\_freq <- tabyl(data, q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence) %>%  
 adorn\_pct\_formatting() %>%  
 adorn\_totals("row")  
  
dgbv\_flex <- flextable(dgbv\_freq) %>%  
 set\_caption("Table 1. DGBV Experience Frequency (Q9)") %>%  
 autofit() %>%  
 bold(i = 1, bold = TRUE)  
  
dgbv\_flex

Table 1. DGBV Experience Frequency (Q9)

| q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence | n | percent |
| --- | --- | --- |
| **No** | **46** | **18.4%** |
| Prefer not to say | 10 | 4.0% |
| Yes | 1 | 0.4% |
| Yes, personally | 75 | 30.0% |
| Yes, someone I know | 118 | 47.2% |
| Total | 250 | - |

# -----------------------------  
# Likert-scale summary (Q15)  
# -----------------------------  
likert\_freq <- tabyl(data, q15\_do\_you\_think\_social\_media\_increases\_the\_rate\_of\_online\_gender\_based\_violence) %>%  
 adorn\_pct\_formatting() %>%  
 adorn\_totals("row")  
  
# Convert factor to numeric for mean/median  
likert\_levels <- c("Strongly Disagree" = 1,  
 "Disagree" = 2,  
 "Neutral" = 3,  
 "Agree" = 4,  
 "Strongly Agree" = 5)  
data$likert\_q15\_num <- as.numeric(recode(data$q15\_do\_you\_think\_social\_media\_increases\_the\_rate\_of\_online\_gender\_based\_violence, !!!likert\_levels))  
likert\_mean <- round(mean(data$likert\_q15\_num, na.rm = TRUE),2)  
likert\_median <- median(data$likert\_q15\_num, na.rm = TRUE)  
  
likert\_flex <- flextable(likert\_freq) %>%  
 set\_caption(paste0("Table 2. Perception: Social Media and Online GBV (Q15) - Mean = ", likert\_mean, ", Median = ", likert\_median)) %>%  
 autofit() %>%  
 bold(i = 1, bold = TRUE)  
  
likert\_flex

Table 2. Perception: Social Media and Online GBV (Q15) - Mean = 3.79, Median = 4

| q15\_do\_you\_think\_social\_media\_increases\_the\_rate\_of\_online\_gender\_based\_violence | n | percent |
| --- | --- | --- |
| **Agree** | **116** | **46.4%** |
| Disagree | 11 | 4.4% |
| Neutral | 41 | 16.4% |
| Strongly Agree | 64 | 25.6% |
| Strongly Disagree | 18 | 7.2% |
| Total | 250 | - |

# -----------------------------  
# Gender × DGBV  
# -----------------------------  
gender\_dgbv <- table(data$q3\_gender, data$q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence)  
gender\_dgbv\_pct <- round(prop.table(gender\_dgbv, 2)\*100,1)  
gender\_test <- fisher.test(gender\_dgbv)  
gender\_assoc <- assocstats(gender\_dgbv)$cramer  
  
gender\_df <- as.data.frame.matrix(gender\_dgbv)  
gender\_df\_pct <- as.data.frame.matrix(gender\_dgbv\_pct)  
gender\_combined <- cbind(Gender = rownames(gender\_df), gender\_df, gender\_df\_pct)  
colnames(gender\_combined) <- c("Gender", paste0("Count: ", colnames(gender\_df)), paste0("Pct: ", colnames(gender\_df\_pct)))  
gender\_flex <- flextable(gender\_combined) %>%  
 set\_caption("Table 3. Gender × DGBV Experience (Counts & Column-wise %)") %>%  
 autofit()  
  
gender\_flex

Table 3. Gender × DGBV Experience (Counts & Column-wise %)

| Gender | Count: No | Count: Prefer not to say | Count: Yes | Count: Yes, personally | Count: Yes, someone I know | Pct: No | Pct: Prefer not to say | Pct: Yes | Pct: Yes, personally | Pct: Yes, someone I know |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Female | 12 | 2 | 0 | 52 | 51 | 26.1 | 20 | 0 | 69.3 | 43.2 |
| Male | 34 | 8 | 1 | 23 | 67 | 73.9 | 80 | 100 | 30.7 | 56.8 |

cat("Fisher's p-value =", signif(gender\_test$p.value,3), "; Cramér's V =", round(gender\_assoc,2))

## Fisher's p-value = 4.25e-06 ; Cramér's V = 0.33

# -----------------------------  
# Urban vs Rural × DGBV  
# -----------------------------  
urban\_dgbv <- table(data$q8\_where\_do\_you\_live, data$q9\_have\_you\_or\_someone\_you\_know\_experienced\_digital\_harassment\_violence)  
urban\_dgbv\_pct <- round(prop.table(urban\_dgbv, 2)\*100,1)  
urban\_test <- fisher.test(urban\_dgbv)  
urban\_assoc <- assocstats(urban\_dgbv)$cramer  
  
urban\_df <- as.data.frame.matrix(urban\_dgbv)  
urban\_df\_pct <- as.data.frame.matrix(urban\_dgbv\_pct)  
urban\_combined <- cbind(Origin = rownames(urban\_df), urban\_df, urban\_df\_pct)  
colnames(urban\_combined) <- c("Origin", paste0("Count: ", colnames(urban\_df)), paste0("Pct: ", colnames(urban\_df\_pct)))  
urban\_flex <- flextable(urban\_combined) %>%  
 set\_caption("Table 4. Urban vs Rural × DGBV Experience (Counts & Column-wise %)") %>%  
 autofit()  
  
urban\_flex

Table 4. Urban vs Rural × DGBV Experience (Counts & Column-wise %)

| Origin | Count: No | Count: Prefer not to say | Count: Yes | Count: Yes, personally | Count: Yes, someone I know | Pct: No | Pct: Prefer not to say | Pct: Yes | Pct: Yes, personally | Pct: Yes, someone I know |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Rural | 5 | 2 | 0 | 3 | 6 | 10.9 | 20 | 0 | 4 | 5.1 |
| Urban | 41 | 8 | 1 | 72 | 112 | 89.1 | 80 | 100 | 96 | 94.9 |

cat("Fisher's p-value =", signif(urban\_test$p.value,3), "; Cramér's V =", round(urban\_assoc,2))

## Fisher's p-value = 0.172 ; Cramér's V = 0.15

# -----------------------------  
# Sample Size (Cochran)  
# -----------------------------  
Z <- 1.96  
p <- 0.5  
e <- 0.05  
n <- (Z^2 \* p \* (1-p)) / e^2  
cat("Sample size required (Cochran formula, 95% CI, 5% margin) =", round(n))

## Sample size required (Cochran formula, 95% CI, 5% margin) = 384