Gender Dynamics of Disaster Risk Reduction Management Practices and Preparedness in Selected Secondary Schools

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Abstract

In every school, the safety of the instructors and students comes first. Every educational institution needs to implement safety measures. This study explores the gender dynamics in disaster risk reduction management (DRRM) and school preparedness in secondary schools, using a descriptive correlational design. Data were gathered through surveys from 5 school heads, 249 teachers, and 236 students, and analyzed using mean, standard deviation, t-test, and Pearson r correlation. The findings revealed that gender dynamics in DRRM are highly rated, with an emphasis on gender equality, participation, and involvement in disaster management activities. The mean scores for disaster risk reduction practices were also high, particularly in school risk reduction, disaster response, and curriculum integration. School preparedness, including disaster preparedness activities, safe learning facilities, and knowledge, was similarly highly rated. A significant relationship was found between gender dynamics and both DRRM practices and preparedness, highlighting the role of gender-sensitive approaches in enhancing disaster management. The study also found a significant correlation between DRRM practices and preparedness, suggesting that schools with strong DRRM strategies exhibit higher levels of preparedness. There was no significant difference in the gender dynamics of DRRM implementation based on gender, indicating equal participation opportunities for both male and female respondents. The study concludes that promoting gender-inclusive DRRM strategies strengthens school resilience, enhances preparedness, and fosters a safe learning environment. Recommendations include improving teacher and student engagement in DRRM activities, fostering a participatory approach, and strengthening gender equality in disaster management practices

Keywords: Disaster Risk Reduction Management (DRRM), gender dynamics, school preparedness, disaster response, safety facilities, strategic planning

I. Introduction

Introduction: Gender dynamics shape disaster risk reduction and school readiness, as men and women frequently assume distinct roles. Although men usually take on physical duties such as rescue and security, women frequently concentrate on caregiving and first aid. To improve school safety and resilience, disaster preparedness was comprehensive, guaranteeing equal involvement, resource access, and attention to gender-specific requirements.

In disaster risk, the Philippines was ranked third globally among all countries with the highest risks, as per the World Risk Report 2018, featuring an index value of 25.14% (World Economic Forum, 2018). A minimum of 60% of the nation's overall land area faces various hazards, and 74% of the populace is vulnerable to their effects. This is primarily attributed to the location and geographical setting since the risk associated with coastal hazards like typhoons, storm surges, and rising sea levels is significant (OCHA, 2019).

Reducing disaster risk is an objective for all countries in times of disaster or calamity. It is the examination and actions of each nation to decrease the number of casualties during disasters. These management techniques and strategies are designed to reduce the likelihood of potential casualties during a disaster (Doroteo, 2015). Disaster risk

reduction management has been incorporated into every school to guarantee that both learners and teachers are prepared for potential disasters and hazards. In educational settings, students and educators can participate in various activities to emphasize the significance of being ready for all kinds of emergencies.

The current circumstances regarding the earthquake disaster affecting nearby regions like Cotabato and Davao are quite concerning. Tremors are numerous and the risks are uncertain. Individuals affected may exhibit vulnerability. Educational institutions, residences, highways, and other constructions suffered damage, and many lives were lost. If individuals understand how to cope with climate change, like ensuring that building structures are designed to withstand earthquakes and that homes are located away from fault lines, then the damage caused by these disasters could be reduced (Balistoy, 2019).

During the 2019 earthquake, students exited the building directly while the tremors were still happening at the researcher's work station. This further supports (Ferrario, 2024) that during the earthquake in Cotabato-Davao, students are not practicing the duck, hold, and cover method as a part of disaster risk reduction. In Tboli, some students are not taking the disaster risk drill seriously. This is a problem faced by numerous educators. The understanding and readiness, along with appropriate actions during disaster risk management, are quite insufficient.

The key gap found in the existing research is the absence of thorough studies exploring the role and significance of gender dynamics related to both students and teachers in school-based disaster management and risk reduction. Few studies have been carried out in secondary schools that highlight the roles of both genders, so DRRM emphasizes preparedness but has not succeeded in identifying the roles of each gender.

This study allowed the researcher to identify the gender dynamics in disaster risk reduction management practices and the preparedness of schools. This sought to enhance school practices and improve readiness for potential disasters.

The objectives of this research aimed to determine the gender dynamics in disaster risk reduction management (DRRM) in secondary schools, focusing on equality, participation, and involvement. It further investigates disaster risk reduction management practices in areas such as disaster response, school risk reduction, and the integration of DRRM in the curriculum. Additionally, the study explored various aspects of disaster risk reduction management preparedness, including safe learning facilities, disaster preparedness activities, and responsiveness, attitude, knowledge, and understanding towards DRRM. By examining these elements, the study provides insights into the effectiveness and inclusivity of disaster management practices within secondary schools.

Moreover, the study aimed to determine the relationships between gender dynamics and disaster risk reduction management practices among secondary schools, as well as between gender dynamics and preparedness. It also explores the connection between disaster risk reduction management practices and preparedness in the schools. Furthermore, the study identified the significant differences in gender dynamics on DRRM in secondary schools, based on their gender profiles. These findings will help to highlight any gender-related disparities and inform strategies for more inclusive disaster management policies in education.

Theoretical and Conceptual Framework: The research on gender dynamics in disaster risk reduction management (DRRM) and school readiness is based on three essential theories. The Theory of Planned Behavior (Najafi et al., 2017) illustrates how attitudes and social norms influence preparedness, especially concerning gender roles. The Vested Interest Theory (Miller et al., 2013) posits that a person's engagement in readiness initiatives is influenced by their perceived personal advantages. At the same time, the Social Capital Theory (Kolanchu, 2019) underscores the importance of social networks in disaster management, stressing how gender affects cooperation and resource distribution.

This research primarily utilizes the Theory of Planned Behavior (TPB) to investigate the impact of attitudes, social norms, and perceived control on disaster readiness among students and teachers. TPB clarifies why certain people engage in proactive measures, like stockpiling supplies and creating emergency strategies, whereas others do not. Gender dynamics influence preparedness as

societal roles dictate views on risk and accountability. Grasping these behavioral factors can aid in developing more effective and inclusive disaster risk reduction approaches within educational institutions.

The Vested Interest Theory is relevant to this study as it elucidates how individuals' perceived personal advantages affect their involvement in disaster readiness. In the realm of disaster risk reduction management (DRRM) and school readiness, students, teachers, and staff might react differently to preparedness initiatives depending on their degree of personal investment. Individuals who notice a direct effect, such as maintaining personal safety, securing school facilities, or protecting their families, are more inclined to take proactive steps.

The Social Capital Theory was connected to this research to emphasize the significance of cooperation between teachers and students in preparing for disasters. It highlights the importance of relationships, trust, and teamwork in successfully addressing emergencies. By cultivating robust social connections, individuals and groups are more inclined to engage in disaster risk reduction initiatives and collaborate during crises.

The Theory of Planned Behavior offers a structure for comprehending disaster risk actions and underpins the emphasis of this research on reducing disaster risk (Najafi et al., 2017). As disaster preparedness is a health-safeguarding action, behavioral strategies are vital in enhancing readiness. Even though disasters have a profound effect on countless lives annually, numerous people continue to be unprepared until disaster occurs. This highlights the necessity for a wider, more active initiative to promote behavioral change and foster readiness (Ardalan, 2017).

Additionally, Vested Interest Theory and Disaster Preparedness highlighted the importance of both teachers and students in relation to disaster readiness and the common preparedness actions taken during any disaster (Alipio, 2020). It also addresses the significance of handling hazards for improved comprehension. This theory outlines the planning of actions to undertake prior to, during, and following a disaster (Tuladhar et al., 2015).

Moreover, the Social Capital Theory was considered one of the suitable theories for this research (Kolanchu, 2019). Key elements of disaster risk reduction involved educating and raising awareness among individuals. It enabled people to participate in responsible decision-making once they gained the skills and knowledge to support vulnerable communities or individuals (Pregoner et al., 2020).

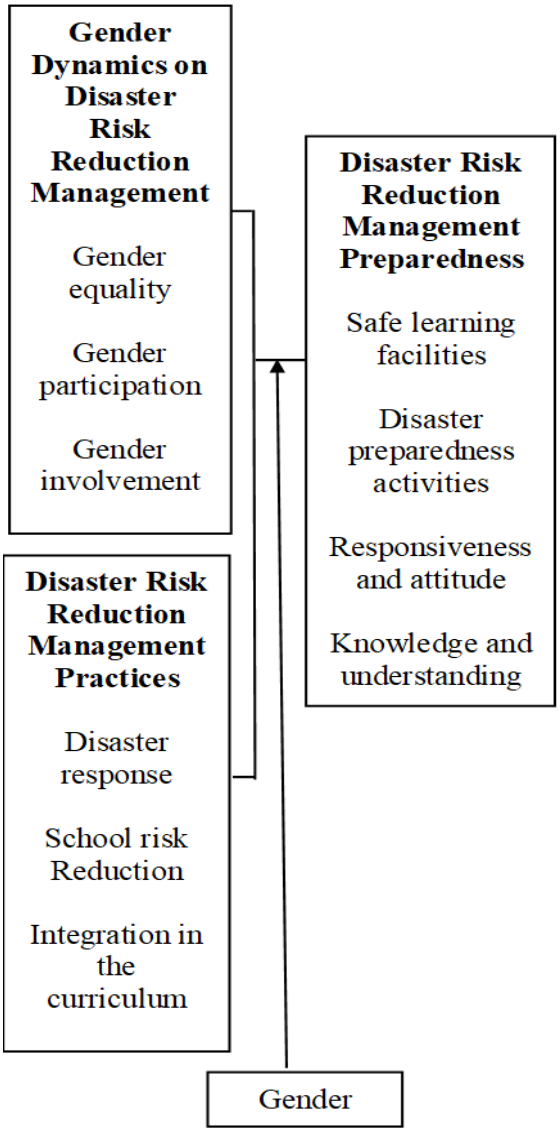

Figure 1. Conceptual Framework

Scope and Limitation: The present research focused on gender dynamics on disaster risk reduction management practices and school preparedness among secondary schools. The gender dynamics on disaster risk reduction management in the secondary schools emphasize the gender equality, gender participation on organizational level and gender involvement on program level.

Meanwhile, the disaster risk reduction management practices focuses on disaster response, school risk reduction and integration in the curriculum. The disaster risk reduction management preparedness capitalizes on safe learning facilities, disaster preparedness activities, responsiveness and attitude and knowledge and understanding.

II. METHODOLOGY

Research Design: The researcher employed the descriptive-correlational approach to illustrate the gender dynamics in disaster risk reduction management practices and school readiness. This research design is relevant; therefore, the researcher aims to explore and ascertain the current relationship between disaster risk reduction management practices and preparedness in relation to gender dynamics. Additionally, the correlational research approach was utilized to assess the connection between gender dynamics and disaster risk reduction management practices

Local of the Study: The investigator took into account the setting of the study in Tboli Municipality. Additionally, the secondary schools were involved where the researcher gathered information from secondary school teachers, principals, and students. It appears that various secondary schools are actively engaging in and implementing DRRM activities (DepEd, 2015). The Tboli Municipality has five (5) secondary schools that are situated far apart due to the terrain. It is also taken into account that other schools have restrictions regarding internet access or ICT facilities since some DRRM activities require or depend on internet connectivity. Additionally, certain areas of the schools are vulnerable to disasters such as landslides, floods, and earthquakes.

Respondents of the study: The researcher engaged three categories of respondents: principals, educators, and learners. The school leaders occupied the roles of head teachers I to III and Principals I to III. The teacher-respondents were full-time permanent educators assigned to various secondary schools. The researcher omitted the schools categorized as integrated schools (DepEd, 2015).

The researcher involved Grade 9 and 10 students from all secondary schools in Tboli municipality among the student respondents. The researcher chose students from Grade 9 and 10 as participants because they possess the knowledge and skills needed for preparation for Grades 11 and 12, where DRR is a fundamental subject (DepEd, 2019).

Additionally, when choosing the students as participants, the researcher established the inclusion criteria. This includes the students officially registered in grades 9 and 10. Furthermore, the students participate actively in DRR clubs. The researcher employed a sample of two hundred thirty-six (236) students. The researcher omitted students who are not actively participating in DRR clubs.

In choosing the teacher-respondents, the researcher considered all regular permanent teachers who are class advisers and possess over 2 years of teaching experience. The researcher engaged five (5) school leaders and 231 educators.

Sampling Technique: This research employed census or complete population sampling to ascertain the count of participants from the school leaders and educators. Total population sampling is a purposive sampling technique in which the researcher decides to investigate the complete population of school heads and teachers with specific characteristics. As stated by Canonizado (2020), in total population sampling, the researcher opts to analyze the entire population because the number of individuals possessing the desired characteristics is usually quite limited

Data Gathering Instruments: Section 1 outlined the gender relations involved in managing disaster risk reduction. The statements were extracted from the literature and research specifically regarding Kotsinas and Cubo (2020). It consists of three variables: gender equality, gender participation at the organizational level, and gender involvement at the program level.

Additionally, Part 2 of the data collection tool aimed to collect information on disaster risk reduction management practices in secondary schools. The statement was extracted from earlier research conducted by Soriano (2021) and Lavilles and Hordista (2024). Every variable is made up of six (6) statements. Every question in the questionnaires was responded to with a 5-point Likert scale.

Furthermore, Part 3 of the data collection instrument outlined the preparedness for disaster risk reduction management concerning safe learning environments, disaster preparedness

initiatives, awareness and attitudes, as well as knowledge and comprehension. Each variable comprises six (6) statements that are responded to using a 5-point Likert scale.

Statistical Treatment: The collected data were encoded, processed, calculated, and analyzed using suitable statistical methods. Mean and standard deviation were employed to assess the extent of gender dynamics in disaster risk reduction management, DRR practices, and DRR preparedness in schools. In addition, an Independent Samples T-Test was employed to assess the significant difference in Gender Dynamics of DRMM Implementation based on the Gender of the Respondents. Pearson r was used to assess the connection between gender dynamics in disaster risk reduction management and practices, gender dynamics in disaster risk reduction management and preparedness, as well as disaster risk reduction management preparedness and practices

III. Results and Discussion

Gender Dynamics on Disaster Risk Reduction Management. The level of gender dynamics on disaster risk reduction management in terms of equality was highly observed. The statement that in order to identify gender-specific elements of disaster management within the school and the community, the school encourages equal participation from both sexes in risk and hazard mapping obtained the highest mean of 3.76 (SD=0.70). In contrast, the school offers equal access to evacuation shelters and emergency housing for both genders, ensuring privacy and security obtained the lowest mean of 3.52 (SD=0.74). This means that the school give priority by means of encouraging gender equality in risk and hazard mapping, identifying gender-specific aspects in disaster management within the school and the community.

This implies that equality among genders is highly observed in all schools when implementing the disaster risk reduction management. By guaranteeing that both sexes participate equally in risk and hazard mapping, identifying gender-specific elements, and improving knowledge, skills, experiences, and capacities, the school is advancing gender-sensitive disaster management. It acknowledges women's equal participation in risk reduction management initiatives and guarantees both sexes equal access to early warning information on impending dangers and disasters.

Likewise, gender dynamics on disaster risk reduction management based on participation of both genders was highly recognized. The indicator on teachers' and students' ability to plan, carry out, monitor, assess, and understand the significance of working on DRR in the context of long-term development is supported by the school obtained the highest mean of 3.59 (SD=0.78). Meanwhile, the school guarantees the integration of DRR into the broader risk reduction strategies at the school level obtained the lowest mean of 3.48 (SD=0.71). This indicates the school give priorities in fostering the ability of teachers and students to effectively plan, implement, monitor, evaluate, and understand the significance of implementing DRR for long-term development.

This implies the gender participation is highly acknowledge in implementing the disaster risk reduction management. Teachers' and students' ability to plan, carry out, monitor, assess, and understand the significance of working on DRR for long-term development is encouraged by the school. It also recognizes women's involvement in organizations, social interactions, and planning and decision-making processes. Additionally, the school improves its capacity to test and pilot new approaches to DRR.

The level of gender dynamics on disaster risk reduction management in terms of involvement was highly acknowledge in the implementation of the disaster risk reduction management. The school prioritizes the support to women's rights to work and participate in DRR activities obtained the highest mean of 3.58 (SD=0.73). On the other hand, to improve their comprehension and proficiency in important DRR outcome areas, the school encourages instructors and students of both genders to share information and learning obtained the lowest mean of 3.50 (SD=0.70).

This suggests that the involvement of genders in DRR implementation is high. The rights of women to work and take part in disaster risk reduction (DRR) initiatives are given top priority at the school. It encourages risk awareness in schools by supporting initiatives and programs started by women. By encouraging teachers and students to share information, the school increases capacity in

important DRR areas. Plans for disaster risk reduction are also developed and carried out with both sexes involved.

In overall results, the gender dynamics on disaster risk reduction management is rated high with mean of 3.56 (SD=0.40). The result indicates that gender-based program and activities highly responsive to the needs of both gender. In particular, gender equality obtained the highest mean among the indicators ($\bar{x}$=3.62, SD=0.46). Meanwhile, involvement obtained the mean of 3.54 (SD=0.47). On the other hand, participation indicator obtained the lowest mean of 3.52 (SD=0.45).

The result implies that gender dynamics on disaster risk reduction management is perceived high. The school is frequently focusing on the disaster preparation, practices and perform their roles both gender equally. The school disaster and risk reduction management activities are implemented based on relations and connections between teachers, school head and students based on gender.

Dela Cruz and Ormilla (2022) evaluated how gender roles are integrated into DRRM programs in public schools in Ifugao. It highlights the gendered impacts of disasters and discusses the importance of gender-responsive DRRM plans for more inclusive and effective disaster management. Gumba et al. (2022) explores the increased burden on women during and after disasters, emphasizing how women are often responsible for re-establishing households and securing necessities, leading to long-term socio-economic consequences.

Table 1
Gender Dynamic on Disaster Risk Reduction Management

Indicators	Mean	SD	Verbal Description
Equality	3.62	0.46	High
Participation	3.52	0.45	High
Involvement	3.54	0.47	High
Section Mean	3.56	0.40	High

Extent of the Disaster Risk Reduction Management Practices. The disaster risk reduction management practices on disaster responses of teachers and students was high. The school supports the plight of women before, during, and after the disaster obtained the mean of 3.59 (SD=0.71). On the contrary, under the direction of a gender analysis, the school promotes community-driven, participatory approaches to disaster management obtained the lowest mean of 3.50 (SD=0.43). This means that the disaster responses give focused in the role of women in handling the activities related to DRR. The findings concluded that disaster responses is highly practiced by both gender emphasizing the empowerment of women in DRR activities. The institution prepares a database of female pupils for convenient monitoring in order to support the plight of women during and after calamities. Additionally, the school makes sure that the information bulletin on the possible effects of disasters on women is accessible.

Continually, school risk reduction was highly practice the activities pertain to the reduction of risk that may occur. The conduct of preparedness exercises and on response needs involving both genders, the school staff closely coordinates with the DRRM council at the local level obtained the highest mean of 3.63 (SD=0.69). On the other hand, the school conducts rapid assessment of damages after the disasters obtained the lowest mean of 3.45 (SD=0.75). This means that the school personnel collaborate closely with the local DRRM council to ensure preparedness activities and response needs, addressing both genders' needs. This suggests that the practices of the school in risk reduction are high. For both genders' preparedness and response needs, the school works with the local DRRM council. A DRRM team is assembled by the school to carry out readiness steps. Planning for school improvement and regular programs both incorporate DRRM. During emergencies and calamities, staff and students are monitored via an efficient tracking system.

The disaster risk reduction management practices, the teachers highly integrate the DRRM activities and program to their lessons. The school conducts disaster preparedness measures including quarterly earthquake drills obtained the highest mean of 3.56 (SD=0.78). On the other hand, the school collaborates to the teachers and students in making the innovative work plan for DRRM advocacy obtained the lowest mean of 3.45 (SD=0.77). The result indicates that different activities were highly conducted relevant to DRRM; however, the collaboration of teachers and students in DRRM planning was given least focus.

In conclusion, disaster risk reduction management (DRRM) in secondary schools adopt

gender-sensitive approaches to address the unique needs of both men and women, particularly in disaster response and recovery. Gender-responsive disaster management programs in schools and communities are essential to ensure equal support and resources for both genders. Integrating gender analysis into disaster management practices fosters inclusive decision-making and strengthens community resilience.

Overall findings indicate that the disaster risk reduction management practices is observe to be high which obtain the overall mean of 3.52 (SD=0.37). The result indicates that the schools have organized and practiced different activities and programs to mitigate any disaster risk that may happen. When taken singly, school risk reduction obtained the highest mean of 3.54 (SD=0.46). Seemingly, disaster response has a mean of 3.50 (SD=0.43) and integration on the curriculum obtained the mean of 3.50 (SD=45). This means that disaster risk reduction was practiced and given priority in disaster risk reduction management.

The findings conclude that disaster risk reduction management practices are highly performed particularly on school risk reduction, disaster response and integration in the curriculum. The practices are adequately observed and implemented and the intervention program was utilized in schools to minimize the effect of disasters.

The study by Torres and Umali (2019) found that DRRM integration in Philippine schools enhances students' awareness and preparedness, leading to a proactive approach to disaster response. Likewise, Palo et al. (2021) highlighted that schools implementing DRRM-focused lessons experience better student engagement and readiness in disaster situations. Santos et al. (2020) on school-based DRRM programs in Metro Manila revealed that student-led risk assessments and disaster drills significantly improve emergency response capabilities.

Table 2
Summary of Disaster Risk Reduction Management Practices

Factors	Mean	SD	Qualitative Description
Disaster response	3.50	0.43	High
School risk reduction	3.54	0.46	High
Integration in the curriculum	3.50	0.45	High
Overall Mean	3.52	0.37	High

Extent of the Disaster Risk Reduction Management Preparedness. The disaster risk reduction management preparedness in terms of safe learning facilities manifest high rating. The result signifies that teachers and students believe that the school's safe learning facilities are highly adequate. Furthermore, it was highly observed that teachers and students participated in the establishment of an early warning system in school with highest mean of 3.78 (SD=0.67). On the other hand, documenting the roles and responsibilities of gender for maintenance obtained the lowest mean of 3.46 (SD=0.76). The result indicates that among the safe learning facilities, establishment of warning signs was noted and prioritize when it comes to disaster preparedness. The findings imply that safe learning facilities manifest high rating. Establishing an early warning system, keeping school facilities safe, locating makeshift classrooms and alternate ways to offer instruction, and strategically posting and updating emergency hotlines across the campus are all tasks that the school undertakes.

Moreover, the disaster preparedness activities was high. The students participated in DRRM hub information sharing obtained the highest mean of 3.66 (SD=0.64). On the other hand, participating in DRR seminars, trainings and activities attained the lowest mean of 3.52 (SD=0.68). This means that quality DRR preparedness is measured through acquiring information about disaster risk preparedness. The result infers that disaster preparedness activities are highly conducted in all schools. Teachers and students practiced using the Earthquake Preparedness Plan, and students took part in risk assessment, mapping, and information sharing via the DRRM hub, seminars, trainings, and activities.

The disaster risk reduction management preparedness in terms of responsiveness and attitude indicated the high capability through responsiveness and attitude. The students and

teachers are responsive and possess high positive attitude. Students aware of and abide by the current catastrophe risk and reduction management directives, policies, plans, memorandums, resolutions, orders, or guidelines obtained the highest mean of 3.63 (SD=0.73). On the other hand, participate in the information drive campaign of the DRR obtained the lowest mean of 3.49 (SD=0.73). This means that students highly followed the rules and policies to become prepared in times of disaster. The implication of the findings includes the high level capacity of students to become responsive and acquired high level of positive attitude in disaster preparedness management. The rules, procedures, and guidelines that are now in place for disaster risk reduction management are known to the students. They take part in disaster preparedness drills and simulations and comprehend the significance of emergency plans and continuing education plans for DRR profiles.

The teachers and students possess high level of knowledge and understanding about the disaster preparedness. In particular when taken singly, the respondents showed their skills and competencies in risk reduction outcomes has acquired the highest mean of 3.64 (SD=0.67). On the other hand, innovative approaches or practices on disaster risk reduction has a mean of 3.48 (SD=0.75). This means that the respondents manifest high level of skills and knowledge about managing disaster preparedness. These findings imply that disaster preparedness is being taken seriously in the school setting, possibly due to consistent training, integration into the curriculum, and active involvement of both teachers and students in drills and educational campaigns. The small standard deviations also suggest a shared level of competency across the group, indicating effective school-wide or district-wide efforts.

In overall, he disaster risk reduction management was rated high with overall mean of 3.56 (SD=0.43). The result indicates a high level of preparation on disaster risk to ensure that every individual is safe and ready for disaster that may happened. Seemingly, safe learning facilities ($\bar{x}$=3.57, SD=0.59) and disaster preparedness activities ($\bar{x}$=3.57, SD=0.49) obtained the highest means. Then, followed by knowledge and understanding attained the mean of 3.56 (SD=0.47) and responsiveness and attitude obtained the lowest mean of 3.52(SD=0.49). This means that students and teachers gave emphasis on safe learning facilities and disaster preparedness activities as part of the disaster preparedness.

The result implies that disaster preparedness possess high level. Both students and teachers established and strengthened capacities of schools to anticipate cope and recover from the negative impacts of emergency occurrences and disasters. The goal of preparedness measures is to manage emergencies by equipping students to effectively handle circumstances and recover. Proper channels of communication, cooperation with authorities, and participation in drills to evaluate response capability and offer training for enhancement are all essential components of effective preparedness measures. Drills and continuous training for better preparedness are other ways that schools should evaluate their readiness.

By taking into account the fundamental elements that influence it, disaster preparedness can be attained. It has to do with the important distinction between subjective and objective readiness for disasters. The first involves structural readiness, such as individuals preparing supplies in advance of the catastrophe to prevent it from happening. Conversely, the latter is the capacity to influence people's perceptions and capacities of preparedness by preparing their feelings about their level of readiness (Abenoja et al., 2023). According to Sandanam et al. (2018), it is crucial to internalize how people understand their psychological and physical readiness, particularly when discussing sustainable development and the long-term perspective of the DRRM system.

Table 3
Summary of Disaster Risk Reduction Management Preparedness

Factors	Mean	SD	Qualitative Description
Safe learning facilities	3.57	0.50	High
Disaster preparedness activities	3.57	0.49	High
Responsiveness and attitude	3.52	0.49	High
Knowledge and understanding	3.56	0.47	High
Overall Mean	3.56	0.43	High

Relationship between the Gender Dynamics on Disaster Risk Reduction Management and Practices among the Secondary Schools. There is significant relationship between the gender dynamics on disaster risk reduction management

and practices (r=0.762, p=0.001). Thus, the null hypothesis is rejected. Seemingly, disaster risk reduction practices as to the disaster response (r=0.58, p=0 .001), school risk reduction (r=0.667, p=0.001) and curriculum integration (r=0.653, p=.001) possess significant relationship to the gender dynamics of disaster risk management.

The result implies that disaster risk reduction practices along disaster response, school risk reduction and curriculum integration significantly influence by the gender dynamics of disaster management. The higher level of gender participation, equality an involvement also manifest the higher the practices performed by the students and teachers.

These findings highlight the critical role of gender inclusion in effective disaster management within the education sector. When both male and female students and teachers are equally engaged in planning, decision-making, and implementation of DRR activities, the overall quality and effectiveness of these practices improve. This suggests that gender-responsive approaches—such as equal representation in DRR committees, inclusive training sessions, and gender-sensitive teaching strategies—should be institutionalized in school disaster preparedness programs. The data also imply that promoting gender equality in leadership and participation enhances the school's capacity to build a more resilient and responsive environment during emergencies. Therefore, policymakers and school administrators must prioritize gender mainstreaming as a strategic component of disaster risk reduction to ensure that all voices are heard and all capacities are utilized in reducing risks and protecting lives.

Table 4
Correlational Analysis between the Gender Dynamics on Disaster Risk Reduction Management and Practices

DRRM Practices	Statistics	Equality	Participation	Involvement	Overall Mean (Dynamics)
Disaster Response	Pearson's r	0.49	0.539	0.469	0.581
	p-value	0 .001	0.001	0 .001	0 .001
School Risk Reduction	Pearson's r	0.57	0.537	0.605	0.667
	p-value	0 .001	0 .001	0.001	0 .001
Curriculum Integration	Pearson's r	0.51	0.617	0.556	0.653
	p-value	0.001	0 .001	0 .001	0 .001
Overall Mean	**Pearson's r**	**0.63**	**0.678**	**0.654**	**0.762**
	p-value	**0.001**	**0.001**	**0.001**	**0 .001**

Notes: df=467; p<.05, significant

Relationship between the Gender Dynamics on Disaster Risk Reduction Management and Preparedness. The gender dynamics on disaster risk reduction management and preparedness are significantly related to each other (r=0.787, p=0.001). This possesses a string evidence to reject null hypothesis, since significant relationship. Although they are significant, the two indicators consider high relationship with correlational value falls between 0.70-0.80.

Specifically, safe learning facilities (r=0.707, p=0.001); disaster preparedness activities (r=0.657, p=0.001); responsiveness & attitudes (r=0.672, p=0.001) and knowledge & understanding (r=0.715, p=0 .001) have significant relationship on the equality, participation and involvement of gender dynamics on DRR implementation.

The result implies that disaster risk reduction management preparedness is significantly influence on the gender dynamics of DRR implementation. When the both gender have given equal chances to participate in DRR program they have the same reach of capacity to prepare themselves on the activities.

The disaster risk reduction management preparedness significantly influences the gender dynamics in DRR implementation. When both genders are given equal opportunities to participate in DRR programs, they have equal capacity to prepare for and engage in related activities. This highlights the importance of gender equality in ensuring that all individuals have the necessary skills and knowledge to contribute effectively to disaster risk reduction efforts. The implication of this finding is that gender-inclusive policies and equal participation opportunities are essential in building a comprehensive and effective DRR strategy, as both male and female students, when equally involved, can enhance the overall preparedness and response capacity of the school community.

Table 5
Correlational Analysis between the Gender Dynamics on Disaster Risk Reduction Management and Preparedness

DRRM Preparedness	Statistics	Equality	Participation	Involvement	Overall Mean (Dynamics)
Safe Learning Facilities	Pearson's r	0.59	0.583	0.644	0.707
	p-value	.001	.001	.001	.001
Disaster Preparedness Activities	Pearson's r	0.54	0.566	0.582	0.657
	p-value	.001	.001	001	.001
Responsiveness & Attitudes	Pearson's r	0.54	0.56	0.628	0.672
	p-value	.001	.001	.001	.001
Knowledge & Understanding	Pearson's r	0.57	0.619	0.65	0.715
	p-value	.001	.001	.001	.001
Overall Mean	**Pearson's r**	**0.64**	**0.666**	**0.717**	**0.787**
	p-value	**.001**	**.001**	**.001**	**.001**

Notes: df=467; p<.05, significant

Relationship between the Disaster Risk Reduction Management Practices and Preparedness. The disaster risk reduction management practices on safe learning facilities (r=0.754, p=0 .001); disaster preparedness activities (r=0.693, p=0 .001); responsiveness & attitudes (r=0.704, p= .001) and knowledge & understanding (r=0.730, p-0.001) manifest a significant relationship on the disaster risk reduction management practices.

This implies that disaster risk reduction management preparedness is the predictors of DRR practices. When teachers and students have prepared everything including safe learning facilities, disaster preparedness activities, responsiveness & attitudes and knowledge & understanding they have also the capacity to practice what the prepared.

The present findings are consistent to the ideas of Corpuz (2019). Teachers and administrators successfully applied DRRM methods in risk reduction, school disaster management, and safe learning environments. The schools demonstrated effectiveness in carrying out various initiatives, programs, and activities designed to increase the community's overall knowledge and proficiency in disaster management (Corpuz, 2019). Building a safe environment, assembling disaster teams, and incorporating important messages into the curriculum are just a few of the disaster management initiatives that teachers and students carry out in the classroom (Cruz & Omilla, 2022). The findings support the idea that teachers and administrators effectively implement DRRM strategies, creating safe learning environments and enhancing community preparedness through various programs and curriculum integration.

Table 6
Correlational Analysis between the Disaster Risk Reduction Management Practices and Preparedness

DRRM Preparedness	Statistics	Disaster Response	School Risk Reduction	Curriculum Integration	Overall Mean (DRRM Practices)
Safe Learning Facilities	Pearson's r	0.58	0.656	0.641	0.754
	p-value	0.001	0.001	0.001	0.001
Disaster Preparedness Activities	Pearson's r	0.52	0.581	0.626	0.693
	p-value	0.001	0.001	0.001	0.001
Responsiveness & Attitudes	Pearson's r	0.53	0.602	0.626	0.704
	p-value	0.001	0.001	0.001	0.001
Knowledge & Understanding	Pearson's r	0.55	0.637	0.633	0.73
	p-value	0.001	0.001	0.001	0.001
Overall DRRM Preparedness	Pearson's r	0.63	0.709	0.723	0.825
	p-value	0.001	0.001	0 .001	0.001

Notes: df=467; p<.05, significant

Difference on the Gender Dynamics on Disaster Risk Reduction Management According to their Profile. Gender dynamics of DRMM implementation has no significant difference according to the respondent's gender (μ=24114, p=0.1320). This has a strong evidence to reject the null hypothesis. Seemingly, when taken individually, the gender dynamics of DRRM implementation on equality (μ=24797, p=0.300); participation (μ=24450, p=0.200, involvement (μ= 24704, p=0.270) possess no significant difference when classified by respondents' gender.

The result implies that both female and male respondents have the same perception of the DRRM implementation. Furthermore, no changes on their gender dynamics as manifested in the comparable mean scores. No gender disparity in the implementation of the DRRM because both genders were given equal opportunities to participate in the program.

Different cultural and socioeconomic circumstances and dynamics may be associated with gender differences. According to the limited studies that have examined gender differences in one area of preparation, women are more likely than males to evacuate, possibly because of socially established gender roles and dynamics (De March et al., 2019). Men were more likely than women to report volunteering following a disaster, according to an evaluation of gender as a predictor of motivation to help (De Silva & Jathilaka, 2019).

In the Philippine context, Sartorio and Davalos (2024) argue that while there is growing recognition of women's contributions to disaster resilience, gender disparities still exist, particularly in leadership roles and access to resources. These disparities hinder effective disaster management, suggesting that more gender-responsive policies are needed to ensure women's full participation in DRRM activities. Ocampo and Esplado (2020) further emphasize the need for gender equality in disaster preparedness programs, particularly in educational institutions, where both male and female students often face different challenges but are not always given equal consideration in disaster planning.

Table 7
Independent Samples T-Test of the Gender Dynamics of DRMM Implementation by Respondents' Gender

	GENDER	Mean	Mann-Whitney U	p
Equality	Female	3.64	24797	0.300
	Male	3.58		
Participation	Female	3.54	24450	0.200
	Male	3.48		
Involvement	Female	3.56	24704	0.270
	Male	3.50		
Overall Mean (Gender Dynamics)	Female	3.58	24114	0.132
	Male	3.52		

Note. H_a $\mu_{FEMALE} \neq \mu_{MALE}$

IV. CONCLUSIONS

Gender dynamics in disaster risk reduction management (DRRM) are rated highly, signifying that gender-based programs and activities effectively address the needs of both genders highlighting the emphasis on ensuring equal opportunities and representation in DRRM initiatives.

The disaster risk reduction management (DRRM) practices are effectively implemented, particularly in school risk reduction, disaster response, and curriculum integration. These practices are consistently observed, ensuring preparedness and resilience in school communities.

The disaster preparedness is highly prioritized, with both students and teachers actively enhancing the school's capacity to manage and recover from disasters. Effective preparedness involves communication, cooperation with authorities, participation in drills, and continuous training to improve response capabilities and readiness.

Disaster response, school risk reduction, and curriculum integration all display strong correlations with gender equality, participation, and involvement, highlighting the importance of integrating gender-sensitive approaches in DRRM initiatives which foster a gender-inclusive disaster management framework can strengthen preparedness, response efforts, and overall school resilience.

There is a strong connection between gender dynamics and disaster preparedness, emphasizing the importance of equality, participation, and involvement in DRRM initiatives. Promoting gender-inclusive strategies in disaster management enhances school readiness and ensures a more resilient and responsive learning environment.

There is a significant relationship between Disaster Risk Reduction Management (DRRM) practices and preparedness, emphasizing the importance of integrating safety measures, preparedness activities, and awareness programs in schools. Schools that implement strong DRRM strategies tend to have higher levels of disaster preparedness, ensuring better protection for students and teachers.

Both gender perceive DRRM implementation similarly, with no significant gender disparities. The comparable mean scores suggest that both genders are given equal opportunities to participate in disaster preparedness and response efforts, promoting inclusive and effective risk reduction strategies.

Schools play a crucial role in disaster risk reduction management (DRRM), and it is essential to integrate these practices into broader risk reduction strategies. To achieve this, school heads and teachers are encouraged to actively participate in DRR initiatives, ensuring a comprehensive and coordinated approach at the school level. Moreover, fostering a participatory and community-driven approach to disaster management is vital, as it allows all stakeholders, regardless of gender, to contribute meaningfully to preparedness and response efforts.

In addition to school leadership and community involvement, students must also enhance their responsiveness and attitude toward the strategic plan and priority areas of DRRM. By doing so, they

become more proactive in mitigating risks and responding effectively to emergencies. Furthermore, school heads should take the lead in improving safety preparedness by conducting rapid assessments of damages following disasters. This not only ensures a timely response but also aids in developing better recovery strategies.

Equally important, schools should strengthen and sustain gender-inclusive participation in DRRM to create a more inclusive and effective disaster management system. Alongside this, disaster risk reduction practices and preparedness must be systematically incorporated into the school's strategic plan to ensure continuity and institutional support. Finally, recognizing and supporting the DRRM practices of both teachers and students will foster effective collaboration, ultimately leading to a safer and more resilient school environment.

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REFERENCES

Abenoja, S., Baog, I. W., Briz, A. C., Bustamante,H. M. M., Garcia, R., Mongado, R., & Ramos, A. J. B. (2023). The implementation level of disaster risk reduction management and disaster preparedness in selected schools in Davao de Oro., *International Journal of Research Publications (IJRP.ORG) 128(1),*580-588. https:// www. research gate.net/

Alipio, M.(2020). Predicting academic performance of college freshmen in the Philippines using psychological variables and expectancy-value beliefs to outcomes-based education: A Path Analysis. *IMCC Journal of Science, 1(Special),* 77-86 https://doi.org/10. 35542/ osf.io/pra6z

Ardalan, M. R., & Erfanizadeh, F. (2019). Readiness for change: explaining the role of organizational commitment, jobcommitment and social relations in the workplace. *Transformation Management Journal, 11(Autumn & Winter 202*0), 185-206. https://tmj.um.ac.ir/article_

Balistoy, Ruby Leonora. (2019, October 16). Magnitude 5.9 quake rocks *Bukidnon, Cracks buildings.* https://reliefweb.int/

Canonizado, I. N. (2020, October 10*). When to use total population sampling in a research study*. https://discover.hubpages.com/

Corpuz, A. C. (2019). Disaster risk management practices and readiness for disasters among selected schools in City of Biñan, Laguna, Philippines. *International Journal of Humanities and Social Science, 9(3),* 62-70. http://dx.doi.org/10.30845/ijhss.v9n3p9

Cruz, R. D. D., & Ormilla, R. C. G. (2022). Disaster risk reduction management implementation in the public elementary schools of the Department *of Education, Philippines. International* Journal of Disaster Risk Management, 4(2), 1-15. https://doi.org/10.18485/ijdrm.

Dela Cruz, R. D., & Ormilla, R. C. G. (2022). Disaster risk reduction management implementation in the public elementary schools of the Department of Education, Philippines. *International Journal of Disaster Risk Management, 4(2),* 1–15. https://doi.org/10.18485/ijdrm.

De Marchi, B.; Scolobig, A.; Delli Zotti, G.; Del Zotto, M. (2019, December 4). Risk construction and social vulnerability in an Italian Alpine Region. http://www. floodsite. net/

Department of Education (DepEd). (2015, May 18). *The Comprehensive Disaster Risk Reduction and Management (DRRM) in Basic Education Framewor*k. https://www.deped. gov.ph/

Department of Education (2019, October 6). *Senior high school core curriculum subjects. https://www.deped.gov.ph/k-*

Department of Education (2015, March 1). DepEd Order No. 37, s.2015. The comprehensive disaster risk reduction and management (DRRM) in basic education framework.www.deped.gov.ph

De Silva, K. & Jathilaka, R. (2019). Gender in the context of disaster risk reduction; a case study of a flood risk reduction project in the Gampaha District in Sri Lanka. *Procedia*

Econ. Finance, 18, 873–881. https://www.researchgate.net/publication

Doroteo, H. J. E. (2015). Disaster risk profile and disaster risk management framework of the Philippines: Natural Disasters. [University of Oviedo]

Ferrario, M. F., Perez, J. S., Dizon, M., Livio, F., Rimando, J., & Michetti, A. M. (2024). Environmental effects following a seismic sequence: the 2019 Cotabato—Davao del Sur (Philippines) earthquakes. Natural Hazards, 1-23. https://doi.org/

Gumba, M. C. G., Lim, C. P., Nieves, J. R., & Dioneda Jr, R. A. (2020). Hazard preparation for the fishing community of Nato, Camarines Sur, Philippines using the participatory approach to Disaster Risk Reduction and Management (DRRM) Planning. *Kuroshio Science, 14(1),* 7-27. https://www.researchgate.net/publication

Kolanchu S.P. (2019. An analysis of community awareness to chemical hazards in Zamdela township-SASOLBURG, [Thesis, University of Free State].

Kotsinas, M & Cubo, P. (2023, February 21). *Gender transformative disaster risk reduction*. https://weeffect.org/

Lavilles, H., & Hordista, A. (2024). Implementation of disaster risk reduction and management program in selected schools in Region XII, Philippines. *Psych Educ Multidisc J, 16(4),* 373-386. https://papers.ssrn.com/

Najafi, M., Ardalan, A., Akbarisari, A., Noorbala, A. A., & Elmi, H. (2017). The theory of planned behavior and disaster preparedness. *PLoS currents, 9.* https://www.ncbi.nlm.nih.gov

Ocampo, L. L.M., Esplada, D. (2020). Developing a disaster management plan for tourism management students of De La Salle university-Dasmarinas.*InternationalJournal of Thesis Projects and Dissertations (IJTPD),8(2)*,1-16.www.researchpublish.co

Ocha (2019, July 7). *Disaster risk reduction in the Philippines, status report.* https:// relief web.int/sites/

Palo, M. J., Santos, R. D., & Villanueva, C. P. (2021). The impact of integrating DRRM into lesson plans: A case study of selected Philippine schools. *Journal of Disaster Education Research, 7(1),* 55-72. https://www.researchgate.net/

Pregoner, J. D., Josol, R. A., & Lim, L. (2020). *Combating urban hazard: A Qualitative study on the perception on disaster preparedness of stem students.* https://osf.io/preprintsedarxiv/bvcgj/

Sandanam, A.; Diedrich, A.; Gurney, G.G.; Richardson, T.D. (2018). Perceptions of cyclone preparedness: assessing the role of individual adaptive capacity and social capital in the Wet Tropics, Australia. *Sustainability, 10,* 1165. https://www.mdpi.com

Santos, R. D., Mendoza, A. L., & Cruz, F. P. (2020). Effectiveness of school-based disaster preparedness programs in Metro Manila. *Asian Disaster Preparedness Journal, 9(2),* 33-47.https://www.mdpi.com

Sartorio, J. M., & Davalos, G. R. D. (2024). Women leaders and disaster resilience in Calumpang, General Santos City, Philippines. *Journal of Humanities and Research Studies, 2(1).* https:// journal msugensan.org/

Soriano, R. F. (2021). Women's involvement in disaster risk reduction and management in the province of Pangasinan, Philippines. *The ASTR Research Journal, 5(1*), 1-1. https://www.academia.edu/

Torres, M. L., & Umali, J. P. (2019). Enhancing student awareness through disaster risk reduction integration in education. Philippine *Journal of Education and Safety, 10(1),* 88-101. https://www.researchgate

Tuladhar G, Yatabe R, Dahal RK, Bhandary NP. (2019). Disaster risk reduction knowledge of local people in Nepal. *Geoenvironmental Disasters,2,*1-12.https://www.link.springer.com

World Economic Forum. (2018, May 6). The world risk report 2018. *World Economic Forum.* https://www.weforum.org/publications/the-global- risks-report-2018/